SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2099.—VOL. XLV. LONDON, SATURDAY, NOVEMBER 13, 1875. PRICE (WITH THE JOURNAL) SIXPENCE. PER ANNUM, BY POST, £1 4s.

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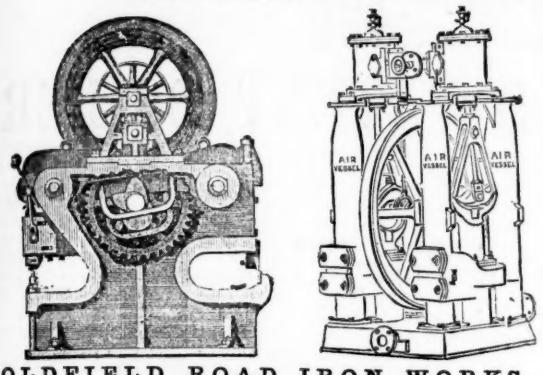

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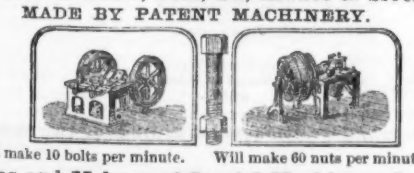

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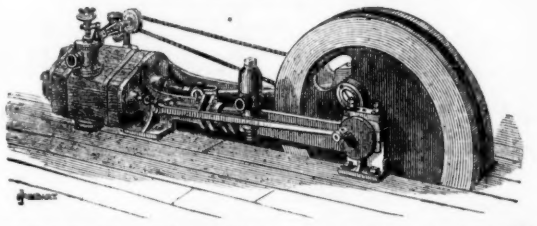

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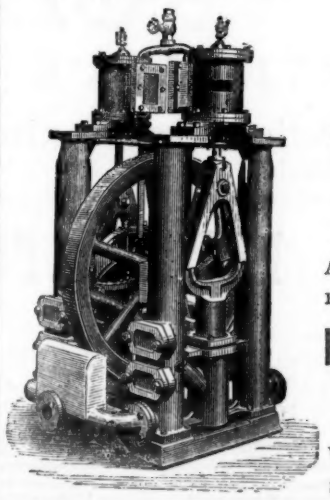

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It has been selected by the Admiralty for their works, and is extensively used at the principal Mines, Collieries, and Quarries of Great Britain, and the Continent of Europe.

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"Under the most difficult circumstances, they give every satisfaction."—G. GREY: *Montreal Iron Mines, Cumberland.*

"The simplest and best boring machine."—Capt. WASLEY'S letter to the *Mining Journal*, Oct. 18, 1873.

"It gives every satisfaction."—W. E. WALKER: *Lord Leconfield's Iron Mines.*

"The rock-drill I bought of you seven months ago has given me entire satisfaction, and I am convinced that the 'Kainotomon' is the best rock-drill in the market."—P. MCGINNIS: *Strabane.*

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8.—It is so simple in its construction that any ordinary labourer or miner can drive it, simply having to turn on the motive power and feed the drill.
9.—The rotation is compulsory, and regular.
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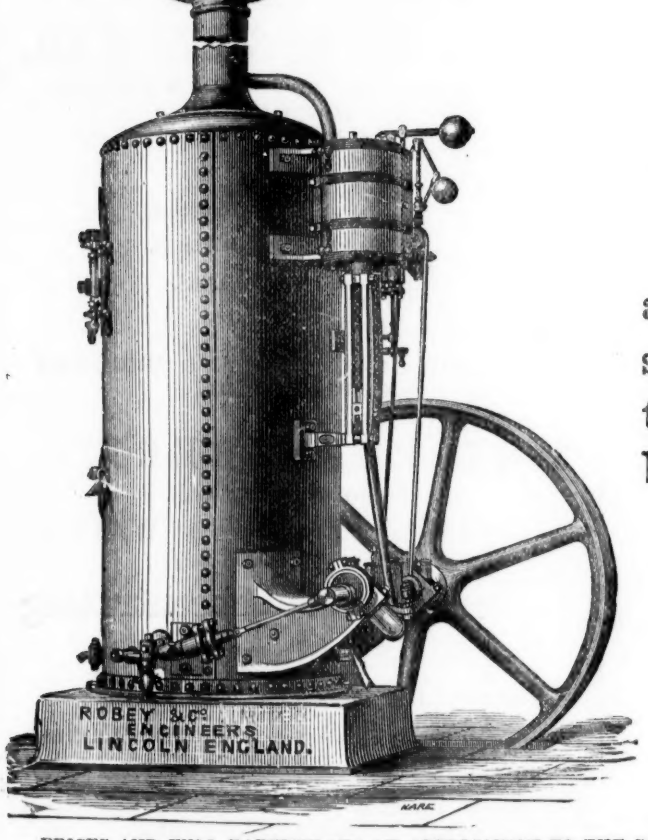

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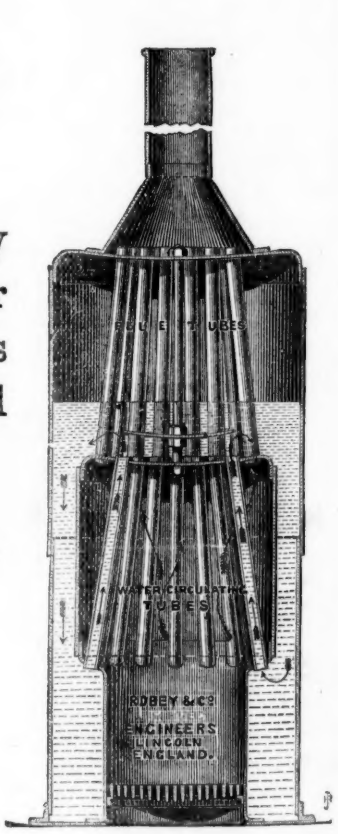

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CONTRACTORS' LOCOMOTIVE, 6 to 27-horse power. For steep inclines and quick curves.
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From the STRENGTH, SIMPLICITY, and COMPACTNESS of these ENGINES they are extensively USED for GENERAL PURPOSES, and also in situations where STEAM-ENGINES OF THE ORDINARY CONSTRUCTION CANNOT BE APPLIED.

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Original Correspondence.

THE CLIFTON SILVER MINING COMPANY.

SIR,—The report of this company's committee, published in the *Mining Journal* of Oct. 2, suggests a mode of raising funds in order to establish furnaces on the Clifton Mine, and thereby to make the mine pay dividends on old and new investments. The proposition to build furnaces is based:—

1.—On Mr. Eishbaum's statement to have consulted with the most skilled man in Colorado on the subject of smelting ores.

2.—On Mr. Christopher B. Danby's statement that "$20 is about the average cost of the treatment of similar ore in a blast furnace in other parts of Colorado." Also, on the same gentleman's statement—

3.—That "Water-dressing would not answer, owing to the great loss (usually 35 per cent.) which takes place in subjecting argentiferous ores to such treatment."

4.—That $4350 will pay off the indebtedness, except debenture bonds already issued, and build the furnaces required to make the mine realise $10 profit on each crude ton of ore produced by the mine.

Mr. Eishbaum has been candid enough not to claim any authority in the matter for himself. His anonymous authority consulted can be of no value in the premises. Colorado is full of wise men, proclaiming themselves and one another as authorities, but of real practical legitimate work there is so enormously little done that some precaution in taking Coloradean anonymous authority for good might prove to be money saving, and especially so when the authority has to go secondhand, and on what insufficient information even that secondhand anonymous authority may have had. Exaggerating, magnifying, and instigating false hopes is so universally and unanimously the habit and the nature of the population of Colorado—irrelevant whether speaking of weather, real estate, or mining matters—that even forewarned and strengthened by technical experience and knowledge every new-comer will find it hard not to be let in by the knowing ones, who are sure of utilising the general tendency to make everything appear in agreeable and beautiful colours. Mr. Eishbaum has probably heard, not from one but from hundreds of men, the assertion that he would only have to build furnaces to smelt in order to make the Clifton Mine pay *big*. If the men had only built the furnaces the Coloradeans living around the place would have had the sure benefit of several thousand pounds sterling spent in their midst; and what do they care, almost without exception, whether the expenditure by which the furnaces—that popular panacea for all mines with a sickening constitution—were built will be realised or not? Just the reverse, "somebody will run the mine if the company fails to do so;" the material wasted in the furnaces will help them to run the mine afterwards.

That Mr. T. Chr. B. Danby should be led astray so as to accept the same erroneous statements, and even try to persuade the company to the same opinion—ominous and dangerous at the same time—can be attributed only to the fact that his information concerning all relative facts was incomplete or erroneous. To show this I have to ventilate his different statements alluded to under 2, 3, and 4.

I have now lived in this Territory since the end of 1873, and have, indeed, taken all possible trouble to ascertain correctly what is done here in my trade, and especially in the treatment of ores. Now, I can assure you that "similar ores" to those of the Clifton Mine are treated nowhere in Colorado, and have been treated only sporadically, but never with any financial success as yet, neither in smelting nor in any other metallurgical way. How, then, can there exist an experience, a rule establishing the smelting cost at $20 per ton. Coke will cost $30 and $35 per ton, at least, at Blackhawk; charcoal is at a rate corresponding with $12 per cord (128 cubic feet of wood). Who, versed in these matters, will pretend that $20 will cover all costs of smelting with such figures for fuel? If real experience may be quoted, not on *similar* but on better lead ores than the Clifton ever will produce in the average, experience made in this Territory in better locations than at Blackhawk, as far as cost of fuel is concerned, has established as a rule that $20 do not pay the smelting expenses, including costs for management &c.

The loss (in silver) sustained by wet (water) dressing of argentiferous ores is, by Mr. Danby, stated to be about 35 per cent. in general. Be this as it may, the question for the Clifton Company is rather the comparative gain and loss in mechanical concentration without smelting, and mechanical concentration and smelting. As to the loss in silver on the Clifton ore in mechanical concentration, no test has ever been practically made, except the prolonged test made by me in our Denver works. It amounted to from 5 to 6 ozs. in the ton, without utilising the slimes, out of which slimes by further treatment 3 to 4 ounces per ton were realised. Considerable as this loss may be, there is no doubt whatever but that in smelting the crude ore instead of the concentrated ore, the total loss in silver will be the more considerable, as the dross (slack) carries from 6 to 16ozs. of silver, according to the more or less good run of the furnaces.

To specify here all comparative figures so as to establish by them the proper course to be taken by the Clifton Company as to concentrating with or without smelting, or smelting without concentration, would take more space than the Journal could afford, but a few remarks will at least serve the purpose of attracting attention to the fact that there are other opinions existing in the matter than those of Mr. E.'s anonymous authorities and of Mr. Danby. The nature of the Clifton ore is as follows:—Of 15 tons produced by careful picking 1 ton of smelting ore, such as was sent to Pittsburgh, can be collected. Of the same 15 tons about 3 tons could be kept out as poor rock, and 12 tons consist of a very intimate finely disseminated mixture of galena, iron, copper pyrites, and quartz. The total average of the product of the mine consists of about 20 per cent. galena, 40 per cent. pyrites, and 40 per cent. rock.

In order to recover the 20 per cent. galena, or what thereof would be recoverable by smelting, *all* the ore would have to pass the lead furnace, because not 5 per cent. could be gathered by hand picking. Therefore, 12 out of 15 tons would have to undergo the double process of roasting and smelting in order to recover the lead; and the cost per ton would be considerably in excess of the $20 allowed. In my letter on the same subject in the Journal of Aug. 14, I proposed mechanical concentration for the ore of the Clifton Mine. This work can be contracted for at $4·50 per crude ton, and 2 tons rock out of 5 tons ore can thus be disposed of with a proportionately diminished loss in silver against the loss occasioned by this rock being smelted with the balance. Now, if smelting would cost only $20, this would make $100 for 5 tons, concentrated at $4·50 into 3 tons, and these 3 tons smelted would make only $82·50, or $2·50 less on each ton of crude ore. But the result is still more favourable than this, because only 1 of the 5 tons will have to be smelted, and for the pyrites carrying from 3 to (may be) 5 per cent. of copper, and 40 to 45 ozs. of silver, the lyching process, as first introduced by Ziervogel and Augustin, and improved upon by Hunt and Douglas and others, would be the proper method if the company intends to make a complete arrangement for utilising the ore. But before reaching so far, I consider it would be more safe and sure if arrangements were made for concentrating the ore mechanically. The clean galena can be sold for as much as it is worth, and by smelting in this Territory no profit can be made direct on such clean galena, unless it be by buying high silver ores and reducing them in the same process, which is a commercial business requiring large capital. Lead is worth here 4 cents and not 5 cents per lb.; silver in lead, as rich as the Clifton would produce, would sell at $1·25, and not at $1·40; lead, with 600 ozs. silver to the ton, would sell at $1·35 per ounce only.

To sum up, the result of erecting furnaces on the Clifton Mine would most probably be that this special ore is absolutely not fit for smelting, inasmuch as the produce would not cover the expense, but, at any rate, every ton would cost in smelting $25 at the lowest, and 4 tons in every 5 would require roasting besides, bringing the average up to about $30 for every ton of ore produced. By introducing mechanical concentration, which can be done with less capital than furnaces will swallow, out of 5 tons 2 will cost $4·50 only for concentration. It will cost the same $4·50 and $25 for smelting, and the two others $4·50 and $15 for bleaching process. In building furnaces every ton will cost for treatment $30; but by not building furnaces, but only concentration and lyching works, the same, and more, can be realised, and only 1 ton in 5 will have $25 deducted by the smelter, while 2 tons will cost $19·50, and 2 only $4·50; so that by not building furnaces $14·50 on each ton will be saved, or, rather, not lost. By all calculation about $10 to $12 per ton net can be realised by mechanical concentration and selling the concentrated material. On lyching the pyrites against selling them another $10 to $15 per ton of pyrites can be made, but the galena will bring all that can be made out of it by selling as well as by smelting, and selling will save capital and risk.

Mere facts have to be consulted only in order to predict that with the funds named no successful smelting works could be constructed at the mines; but concentration works may be constructed for less, and the total may prove sufficient, or nearly so, for concentrating and lyching works. I am conscious of no other motive for my above statement but the interest I take in these matters in general, and would not have made it unless sustained by a full acquaintance with all the facts.—*Denver, Col.* F. M. F. CAZIN, Mining Engineer.

P.S.—Not for the sake of boasting, but in order to give the credit to my statement that it deserves, and for the benefit of those interested, I quote a certificate concerning the product of our works here, which have been constructed and managed by me.

DENVER CONCENTRATING AND SMELTING COMPANY.

Denver, July 12.—Upon your request I, with pleasure, hereby certify that of the two lots of lead bullion which I bought as agent of the St. Louis Smelting and Refining Company from you, the one lot being the product of your reverbatory furnace, carried 495·82 ozs. of silver to the ton of lead, and the other lot being the product of your blast furnace, carried 393·15 ozs. of silver to the ton of lead; also that I was advised by the St. Louis Smelting and Refining Company to allow you the highest rate of price for your bullion as by the statement of the metallurgist of the said company the lead was of extra good quality and the best produced as yet in the Territory of Colorado.—J. H. JONES, Agent, St. Louis Smelting and Refining Company.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—Sensational cablegrams are again the expedient. Weeks since we were told the mine had "much improved," and "stopes were looking well." Reduced returns are the result. This week sensationalism is once more rampant—"New discovery; looking splendid; increased returns forthwith!" Such vivid announcements may suit a knot of speculators, but prejudice the true interests of shareholders. Six months since precisely the same things were said—the result, no dividend. Professor Price said there were 100,000 tons of average ore in reserve, but Mr. Rickard tells us as plainly as he dare that this estimate is the veriest moonshine—that the ore is not of such an average value as that extracted, and that where Prof. Price had calculated upon ore limestone only has been found. "A new discovery" now seems a periodical feature. The Richmond is not the first mine thus irretrievably sacrificed. Unduly swelling returns at one time, and reducing them at another, necessarily militates against the satisfactory condition and progress of any mine, particularly one whose ores are found in a capricious formation.

At the last meeting everything was pourtrayed rosily enough—the mine was an interminable annuity, reserves increasing out of all proportion to the output, and dividends henceforth were to be steadily and permanently increased. The result? Reserves, whatever the quantity may be, are unhappily of "low grade" (see Mr. Rickard's reports which appear from week to week in the Journal); returns, instead of increasing, have vexatiously and disappointingly decreased, arising from the primary cause that the reserves as well as the new ore opened are made up of low-grade ore; and the shareholders have not received a dividend since May. If not to progress is to retrograde. Richmond must be on a dangerous declivity; its position urgently demands prompt and violent remedies, otherwise disastrous results seem inevitable. It is to be feared the mine has been made to yield large returns at any cost, and unless a more truly miner-like and less desperate course be at once adopted it will not be difficult to divine the future. MEMBER.

Stock Exchange, Nov. 11.

CENTRAL SWEDISH IRON COMPANY.

SIR,—Referring to my last communication on this company, in the Journal of Oct. 23, I have to remark that none of the parties, whether military, civil, or professional, have given any information. If there are any of the shareholders who hold Emma shares they will have this week received a private letter from the Secretary, showing how the money was squandered in that undertaking. I suggest that means be taken to get an answer to the queries in my former communication. —— A SHAREHOLDER.

AUSTRALIAN MINES INVESTMENT COMPANY.

SIR,—Some four or five years since was issued with the Journal a Gazette, edited by Mr. Dicker, of Royal Exchange Avenue. This Gazette was sent to me, and noticing that several Australian mines were recommended, I naturally, in common no doubt with other subscribers, invested in several—Imperial Crown, Golden Crown, Mariner's Reef, &c., but the more attractive was the Investment Company's mines. In justice to my brother shareholders I may say that the Imperial Crown, Golden Crown, and others, have not as yet been remunerative, but rather the reverse, although enormous attractions were held out as to the dividends likely to be derived, and the question will be as to what steps are advisable to bring about a meeting of the shareholders in the mines alluded to. The Investment Company have just issued their balance-sheet, and a more questionable piece of directors' exposition as to fees, &c., no company could with justice recognise. The capital is 15,000*l.*, and the dividend received from the mines in Australia is nearly 11¼ per annum for the year; but of this sum only 5 per cent. is recommended to the shareholders, the expenses of management being—the secretary 200*l.*, the directors 150*l.*, other charges 32*l.* 3s. 9d., or (say) nearly 2¾ per cent. for the above. Yet, I was told when I invested that the secretary was not to receive anything, or the directors, until 10 per cent. was paid in full for the year. It appears that 3083*l.* odd has been received on the 15,000*l.* invested, or over 20 per cent.; yet only dividends of 2½, 5 per cent., and another recommended of 5 per cent., or 12½ per cent., are forthcoming, with nothing to carry over to next year's account. Surely it is time the shareholders in all such companies met the subject of directors' fees, &c., with something like justice to the interests involved. Mr. Dicker is, I believe, a very experienced Australian miner, and the affairs of these companies in England are under his supervision, therefore it is only right some information from time to time should be furnished as received of each separate investment in the *Mining Journal*. AN INVESTOR.

THE CORNISH PUMPING ENGINE.

SIR,—As a great deal of prejudice has been shown of late against the Cornish or single-acting engine, I was glad to see and much appreciated your remarks in the Journal of Oct. 30 respecting the comparative efficiency and economy of motive steam-power for the drainage of mines. I believe it will be substantiated by the majority of mine captains and engineers that the most efficient type of pumping-engine for the drainage of deep and heavily watered mines is the Cornish pumping-engine; and no details have yet been brought forward by advocates of the direct-acting engine to evince its superiority over the Cornish engine as regards economy of working. I believe the consumption of coal mentioned by you—4 lbs. per horse power per hour—is, if anything, below the mark, depending mostly on the state of the engine and that of the pitwork.

The loss of pressure of steam through evaporation and other causes must be great when taken from surface to supply an underground engine, and how often during a wet season have we to cope with keeping the lower drawing or bucket-lift from becoming flooded and lost. As regards relative working expenses, I do not believe there is any difference worth mentioning. I have seen Cornish engines remain in working order for many years with little or no repair; unless they are too heavily loaded or badly managed they seldom require repair.

A great deal of neglect is to be seen in many mines where with a little care and attention a great saving might be effected, and the coal bills have brought to grief many a good old mine during late years.

Steam jackets are allowed to remain without dense steam; steam boilers and steam pipes, too, in many places are not covered with non-conducting substances. Cylindrical boilers should be replaced by Cornish tubular boilers where the last-mentioned are not liable to injury through incrustation. The blow-off cocks are often neglected, and mud allowed to accumulate in the boilers. Pitwork, too, requires careful attention; leaky joints, defective valves, &c., soon tell a tale. Where the water pumped is corrosive brass valves and plunger-poles are advantageous—they last much longer, and, as they work with less friction, save a good deal in leather, gasket, and tallow.—*Llanbrynmair, Nov.* 8. A FLINTSHIRE MAN.

DYNAMITE AND GUNPOWDER.

SIR,—I believe it is generally admitted that dynamite is about the most effective explosive for nearly all kinds of ground that is at present before the public, but with your correspondent, "Captain," I must say its enormous price has precluded, and will preclude, its general use. Only recently I ordered 50 lbs. from the company's agent here, for which I have to pay 5*l.* 4s. 6d., the 4s. 6d. being agent's charges. Surely the company can allow sufficient commission out of 2s. a pound without their agent pinning on this "extra." I am glad to see that competition has begun in earnest by gunpowder manufacturers, and I trust they will give us an article at a reasonable price that will compare favourably with dynamite. J. B.

Isle of Man, Nov. 9.

RATING OF LEAD MINES WHERE DUES ARE PAID IN KIND AND IN MONEY.

SIR,—In the Circular of the Local Government Board of Nov. 29, 1874, on the Rating Act, 1874, it is said—"The present Act does not apply to mines, the dues of which are *wholly* reserved in kind; and the owner of such mines will remain rateable as heretofore. In the case of mines, the dues of which are reserved in money, or partly in money or partly in kind, the occupier will now be rateable, and the ordinary principles of assessment will apply, except as regards tin, lead, and copper mines." The efforts we successfully made last year to induce the Local Government Board to place lead in the same category as tin and copper for exceptional rating upset the valuations prematurely made of machinery of lead mines for assumed rating purposes, where, as generally in Shropshire, they are held on lease, and the dues paid in money.

Mr. Hedley, the professional agitator on the question, or his clients, are said to have discovered two important instances in which it is stipulated by lease, probably *ex abundanti cautilâ*, that the dues may be paid either in kind or money, and though the dues have always been paid in money, advised the assessment of machinery in these cases, from each of which I understand an appeal is pending. It is clear all lead mines let on lease can be exempted from the rating of machinery by a new lease, stipulating that the dues shall be paid only in money. As appeals are pending from assessment of machinery where dues may be paid in kind or in money, it is undesirable to say more than that the single precedent put forward in a pamphlet of Mr. Hedley's for this assessment is that of a decision on the rating of a Cornish mine, not, I believe, a lead mine, whilst the same authority appealed to experience in the rating of iron and coal mines as a ground for attempting to deal similarly with the machinery of adventurers for so uncertain a mineral as lead, even where the mines were unproductive, a view prematurely advanced, but fortunately put forward in time to enable those who interested themselves in the subject last year to obtain a clear legislative enactment exempting the machinery of lead mines let by lease, instead of the trouble of an appeal. It may be regretted that no one was subtle or ingenious enough to conceive that a verbal difference in a lease might be taken advantage of for an assessment on which a case would have to be tried when the Rating Act was passing, but if the alleged anomaly in the Act has any weight in a judicial decision, it may be fondly hoped, now the question is reduced to such very hair-splitting limits, the ingenuity of over-zealous clerks and professional valuers can do no more to oblige rural boards of guardians in the way of harrassing those who, by their industry and capital, raise the rate of wages in a neighbourhood. R. JASPER MORE.

Shropshire, Nov. 9.

SEPARATION OF LEAD AND BLENDE.

SIR,—In answer to the letter of your correspondent "Adventurer," on the above subject, which appeared in the Supplement to the *Mining Journal* of Oct. 30, I beg to make the following remarks:—

If there is a single mine in Cornwall suffering from dressers not knowing how to separate lead from blende it is a bad look out, for there are hundreds of boys in Cornwall under 15 years of age who can do that with ease. I suppose you have been asleep for the last 50 years; if you had awoke and come to me 25 years ago, when I was only 12 years old, I could have told you how to separate lead, copper, blende, and mundic combined perhaps better than you can tell me now. "Sizeing" the ore has been well understood in Cornwall for more than 100 years. All these minerals are combined in East Wheal Rose, Cargoll, Burrow and Butson, and scores of other mines in England; therefore, that is what Cornish and Devonshire men are best acquainted with.

You talk about your German men dressing out the stuff until what they throw away is worth no more than 5 per cent. If you could tell me where I could get as much stuff as I could dress for the next two years worth 5 per cent. for the above mineral, at 10s. in 1*l.* for dressing, I should not require to work any more, nor my children after me. If the miners of Cornwall and Devon could break stuff, the average worth of which would be 5 per cent. for lead, copper, and blende, the mines would become valuable paying concerns, for the Cornish are very expert in dressing these ores where there is a practical dresser to superintend the floors. Do not misunderstand me here; I do not mean a theoretical "book-taught" man, as we see in some mines, such as the captain's nephew or 33rd cousin, or what not. Nor do I mean in mines where a competent dresser is ruled by parties who do not understand the dressing department. You may possibly have visited a mine where that is the case, and have come to the rash and hasty conclusion that Cornishmen are "lamentably ignorant and conceited." I beg to remind you of the well-known fact that Cornishmen are renowned the wide world over for their extraordinary ability in dressing these ores. More lead dressers, &c., have left Cornwall for Germany and other parts to superintend the portions of the work requiring skill and intelligence in the dressing department, leaving the heavy manual labour to be done by Germans and others, than any other country have ever produced.

You do not, it appears, understand the dressing of ore after it becomes smaller than rape seed. I will allow that theory is "done" at this point, but practice is equal to the emergency. Our mineral, as a rule, is in very hard ground, chiefly dredge, therefore we have to crush it in order to get it clean, and that, of course, reduces two-thirds of it to powder; but I beg to inform you that with all this detriment the lead of our mine has produced 16 for 20, and the blende in proportion.

I dare say many of the shareholders of our Cornish mines would be very pleased if you, the German dressers, and their machinery could do better for them than the above, but well-informed and practical men have very grave doubts as to your ability to do so. It is well known in Cornwall that very often German dressing "masters" get into a fix, and they some way or other have found out where Cornish dressers live, to the no small advantage of the latter party, their services as dressers in Germany being so highly appreciated and well paid for. I will give you a case in point that came under my own notice a short time since. A friend of mine was requested by a German company to come over and superintend the dressing operations of a mine, which was anything but satisfactory. He accordingly went over, and the first thing he did was to pull down half the machinery, which had been erected at great expense, set things to work in his own Cornish style, which, to be brief, soon brought the mineral to a high marketable value, to the great joy and satisfaction of the shareholders of the mine. Now, it strikes me that you have a mine in Germany in a similar predicament to the above, and you, thinking to get information on a cheap scale, inserted your letter with the idea of "pumping" it out of the Cornishmen through the valuable columns of the *Mining Journal*. But I must candidly tell you you have played a wrong card. I do not doubt but that if you had applied to the "ignorant and conceited" Cornishmen in a more

polite and gentlemanly manner they might possibly have given you the desired information; or, may be, you are a fore-runner of some enterprising mechanic seeking to win a fortune by introducing his machinery; but pardon me for telling you we have too much machinery already for the shareholders' profit, which, without speedy removal, will send many of ous mines "the way of all flesh." Certainly I do not condemn all machinery; we must have a certain portion of the work done by it. I offer these remarks being a practical dresser of lead, copper, and blende combined. THOS. ELLERY.

St. Teath, Camelford, Cornwall, Nov. 9.

THE DOWSING ROD AND MINING.

SIR,—I perceive that "Scrutator" in another letter, in which, as in the preceding one, he jumbles the dowsing rod, mesmerism, spiritualism, theology, and scepticism together, does me the doubtful honour of again referring to me. I am neither the advocate nor opponent of the dowsing rod beyond this—that I exceedingly doubt whether a good course of ore which could be remuneratively worked has ever been indicated by it; but if so, we no longer have need of the evidence of geological phenomena, nor of experienced geologists and mining engineers, in selecting a piece of country for work: the dowsing rod supersedes all these things. I am sure I shall have no reason to be jealous of its employment, and shall hail with congratulation the proposed advent of its powers. "Scrutator" accuses me of libelling the two medical men whom he held up to admiration as the apostles of mesmerism. I certainly did not libel them. I have no reason to believe that they were other than honest men, but I only expressed what I believed to be the opinion of the faculty—that they were eccentric men, and that their career, instead of being successful and worthy to be imitated, was one which the aspirants for usefulness would do well to avoid. I do not even know whether this was the fact or not, but am thus assured by several of the most scientific and reliable medical men of the day. Another correspondent, also anonymous, accuses me of attacking those unfortunate physicians, dead or alive, whichever it may be, in a manner the most blameworthy—"mean, dastardly, entirely uncalled for, &c." Surely it was not uncalled for if "Scrutator" held up two men to admiration at whose eccentric escapades the whole faculty laugh? * * * * * THOMAS SPARGO.

GOLD MINES IN WALES.

SIR,—The articles written by Mr. T. A Readwin, F.G.S., and published in the Supplement to the Journal, on the above subject are deeply interesting, and will probably lead to the re-opening of several of the gold mines superficially worked about 15 years ago. There is still a good future for the Dolgelly district, if it can be kept clear from the taint of selfish and greedy promoters. Any new company starting here should avail themselves of the services of the veteran Capt. Parry, whose honesty and ability are so highly spoken of by Professor Ramsay, and who still resides in the district. From an intimate knowledge of the whole neighbourhood, I would strongly recommend in particular the working of Dolfrynog, Cwmeisian, and Tyddyn-gwladis, as besides gold, the two first have good prospects for copper, and the last for lead. All three have good water power, and answer to Murchison's definitions, the lodes traversing altered clay-slates, and the spurs of Rhobell Fawr, the largest mass of greenstone in the kingdom. The mines are about six miles from Dolgelly, where coals and other supplies can be had at a reasonable rate. J. B.

CORNISH MINING—ITS EVILS AND THEIR REMEDIES.

NO. III.

SIR,—Some time ago some of your correspondents in a protracted discussion endeavoured to show through the Journal that much of the non-success which has attended Cornish mining has been owing to the general incapacity of those to whom the conduct of affairs has been entrusted—that of late years a class of amateur theoretical carpet agents, good talkers and writers, but very bad at practice, has arisen, and these, ousting the more rough specimens of mining men, have attained to power, disaster being resultant. The wide-spread prejudice against, and distrust of, these fine spoken plausible agents has, we fear, extended itself to those who, whilst being practical, have taken care to provide themselves with theoretical knowledge and scientific attainments. We must, therefore, carefully guard against including all the officials of the younger generation in an unfavourable comparison with those of former years, and condemning the class because of individual ignorance. What were many of these old practical agents but men whose motto was in the vernacular "Wheer 'tes, theer 'tes," whose attainments outside of actual mining were limited to writing down their names in the "stem book" (often not even that), and drinking fabulous quantities of grog hot, grog cold, toddy, and punch, and all the inventions for whiling away a pleasant but idle hour, and conjuring up memories of old times. Talking of account-houses, that was a strangely worded resolution in reference to dinners at East Pool. Perhaps many of your readers do not know what account-house "means" therein referred to are—a staff of two or three servants and from 50*l.* to 100*l.* a-year from the mine for refreshment, dinners, &c. We are glad to see these things being done away with, and trust the day is not far distant when all account-house dinners, &c., will be done away with entirely. We would like to hear an opinion expressed on the matter.

Let ignorant idle scribblers deride the follies of the age, let them declaim on the incapacity of our agents, but let them not forget that critics need no apprenticeship, let them remember who these old captains were, and recall their obstinacy and ignorance. True there were men whose skill was only subordinate to their energy, whose natural sagacity was sharpened by decades of close observation, and who under their rough exterior cherished an enthusiastic love of their calling, and an ambition that burned only the more ardently as it approached its goal. These were no time-serving sycophants, no inflators of buddles, no upholders of bogus companies, or brokers' informers; these were men, Sir, honest, zealous, and often eminently religious. They were rare then, and we fear rarer now, although some still remain. Now with Cornish agents bread and cheese is the "main chance," and we fear honesty is hardly at a premium. It requires more than an average amount of integrity to resist going slightly out of truth when a man sees his family dependent on him for bread if he only depends for it on his situation. Philosophers say "Virtue is its own reward," but virtue now-a-days will not pay the butcher, nor clothe the destitute, and a man must have the soul of Socrates to fancy his honesty has its reward in the pinched, starved faces of his little ones, and the mute, cold, hungry despair of his helpmate. No; man must do as he is bid, and live expediently—this is the creed of most Cornish agents. They have to please—1. Merchants.—2. Brokers.—3. Themselves.—4. Their masters, the shareholders. The lucky agent does this, but clumsy bunglers wreck on one rock or another, and are peremptorily kicked out, with a complimentary months' pay thrown after to patch the sores, and keep their mouths shut. Here we plainly see the reward of virtue. A Cincinnatus in probity would not be manager of some Cornish mines for three months.

Nor is rectitude alone at a discount, independence is not allowed in Cornwall. Any mining official is allowed to have an opinion, but very few are permitted to act upon it. Some querulous member of an amateur committee comes and vetoes a common sense proposition from spleen or some other feeling quite as personal, so that the agents have not fair play. No man can work if he is hampered by conditions and limits. Allow me to glance at that celebrated saying of one of the most enterprising and shrewd of the noble army of agents, "Tenders are a delusion and a snare." We have seen thousands of pounds saved again and again by tenders and contracts; there was no delusion in this. If Capt. Thomas is right, and his opinion carries great weight, then the system of getting work done throughout the land is a "delusion and a snare." Our school boards are wasting money by having their schools erected by contract, our poor law boards are wrong in inviting tenders for articles for pauper consumption. Will somebody kindly expose the "delusion and point out the snare?" Perhaps Capt. Thomas spoke hastily, if so, and we hope this is the case, he will doubtless explain himself at the next Dolcoath meeting. Surely the dislike must be owing to prejudice. Messrs. Taylor have had over 50 years' experience in Cornwall and all parts of the world, and their opinion must carry weight.—*Nov.* 8. —— "EXPERIENTIA DOCET."

NEW WHEAL LOVELL MINING COMPANY.

SIR,—Under the heading of "Echoes from the Mining Market in the Journal of last week it is stated that New Wheal Lovell has lately paid a second dividend of 5*s.* per share through the Court of the Vice-Warden of the Stannaries.

As the statement is incorrect, I have to request you to be good enough to contradict the same in your next issue. In consequence of the paragraph contributories are writing to know why they have not been paid their dividends. The only dividends declared herein are two of 5*s.* in 1*l.* on the amount of the claim allowed to the non-contributory creditors. CHAS. WM. CLINTON,

Stannaries Court Office, Truro, Nov. 9. Official Liquidator.

NEW CAROLINE MINE.

SIR,—The great copper lode, running south of east and north of west, has been proved for a distance of 220 yards in length, varying in size from about 3 ft. to at least 10 ft. in width, composed of gossan of the finest description to the depth of 28 to 30 yards; under this gossan the black oxide of copper makes its appearance, at first about 4 to 6 in. wide, and in driving west it is from 12 to 18 in. wide. In cutting north about 3 ft., through a branch of spar about 12 inches wide, a second leader, about 18 in. wide, has made its appearance—evidently the top of a second course of copper ore. As soon as a steam-engine is erected large returns of rich copper ore may be calculated upon, as the lode is embedded in a decomposed elvan for about 100 yards in length. The adjoining stratum is a pale-blue soft killas, or clay-slate. This lode is intersected by a large cauuter lode, two east and west lodes, and two cross-courses. This mine or sett is in the centre of numerous mines formerly celebrated for their immense returns of copper ore. The lodes in this sett are all in virgin or untried ground. A lease has recently been granted for 21 years, at low royalty or dues.—*Nov.* 9. A CORRESPONDENT.

WHEAL GRENVILLE.

SIR,—No one two years ago more freely criticised the management of Wheal Grenville, and, in consequence, no one was more severely handled by the Secretary in the *Mining Journal*, than your humble servant. I hope, therefore, I may claim to be considered as somewhat impartial if I call the attention of the shareholders to their present position, and to caution them against being led away by what seems to have degenerated into a mere personal attack on the secretary by a jobber on the Stock Exchange. When about two years ago it was first intimated that the great flat lode of the district would leave South Condurrow, and dip into Grenville at about the 90 fm. level, I went into Cornwall to investigate the matter, as you are aware, and I gave it as my opinion in the *Mining Journal* that to open and lay out, as it were, *a new mine*, on the South Condurrow lode would take at least two years to accomplish, and would involve *a large expenditure of money*. When that had been done I expressed the general opinion of Cornwall that Grenville would become one of the richest tin mines in the county. At that time shares were at about 10*l.* each, and the mine was paying dividends; and upon this subject I came into collision with the officials, for I showed, as I thought, the folly of paying dividends when a large outlay would be required on the new lode. The agents, however, seemed to think differently, for tin was then at a high price.

Well, Sir, from that time to this a large expenditure has been going on at the mine. The South Condurrow lode has been opened out rich at several points. Ere long Grenville will become one of the leading mines of the district. Yet during all this time that the mine has been opening up so well the shareholders have seen their property dwindle down in market value, as though some influence were at work which they could neither account for nor understand; and before I enter more fully into this influence—its cause and results—let me state that two years ago, when I advocated the expenditure upon the South Condurrow lode, tin was at 80*l.* per ton; and had the price kept up Grenville would *now* be working at a *considerable profit*. The last sale for October was about 15 tons, and brought 724*l.*, or about 48*l.* per ton on the average. At the old price of 80*l.* it would have realised 1200*l.*, or a profit of 300*l.* on the month.

I dare say that many shareholders who have lost money by the depreciation in the price of their shares, and have felt great annoyance in consequence, may think from the present movement that all this has been owing to bad management at the mine! But has it? Let facts speak for themselves. In naming these facts, let it be understood that I make no insinuations against Mr. Lane personally. In the latter part of June, 1874, Messrs. Holderness and Nott, of the Stock Exchange, who, with their friends, held very largely, and had bought at high prices, stopped payment, and became bankrupt. For the "account" at the time they failed; they had bought shares at 5*l.* 10s., and the market price was then 5*l.* But some time before they failed they obtained an advance from, and transferred some hundreds of shares to, a jobber on the Stock Exchange, and from the day of their failure the market gave way. Many shareholders will remember how for months and months there were constant notices on the Stock Exchange List—"Grenvilles dropped so and so, &c."—and how, on asking for the reason, they could get no satisfactory answer. Many attempts were made outside to correct the adverse influence within, but in vain. Numbers of holders were frightened out of their shares, and the price, which was 5*l.* when Holderness and Nott stopped, went down as low as 1*l.* 10s.

The jobber to whom Messrs. Holderness and Nott transferred their shares for advances now comes forth, not as mortgagee or trustee, but as the *owner* of the shares; *complains of the management of the mine*, and invites the shareholders generally to lend him their proxies and support, to dismiss all the agents and the secretary. His great complaint against the latter official seems to be that he has not treated him with sufficient courtesy or consideration; and it is just possible, Sir, that this may be true. The secretary is, and has been for years, one of if not the largest shareholders in the mine, and has paid in calls more than four times the amount yearly that he had received as salary, and knowing how his and his brother shareholders' property had been knocked about on the Stock Exchange for some purpose or other, it is possible he has not always felt disposed, to use a common expression, to hold a candle to—this gentleman.

Mr. Lane's first complaint resulted in the inspection of the mine by Capt. Teague, the manager of some of the largest tin mines in Cornwall, who writes on July 29, after a careful inspection, "We in no way find fault with the present agents," &c. Again, "We examined a few of your bills, as also the books, which appeared to be kept in good order."

This did not suit Mr. Lane, so he sent Captain Josiah Thomas, of Dolcoath, a copy of whose report, under date Sept. 1, was sent to every shareholder. And in this I am unable to find any special fault found with the management. Indeed, he rather objects to increased expenditure until more of the flat lode has been seen, though he says that judging from it as far as seen there is no reason to doubt that on being more fully explored it will be found to produce large quantities of *tin for many years to come*. The comparisons between the expenses of South Condurrow and Grenville, as given by Mr. Lane, are only calculated to mislead. No just comparison can be made between mines worked at present under such different circumstances.

Wheal Grenville is 160 fms. deep, and for two years, as I have explained, has had a large outlay in shafts and levels to open up ground that will one day come away at a profit and at less cost.

South Condurrow is only 90 fms. deep. The chief operations now, after a large outlay, are in raising tin from ground already laid open for it. And even thus I find the costs of South Condurrow to be 1446*l.* per month; that of Wheal Grenville 930*l.* per month. Of course, at present the former is making much the largest return.

Changes and modifications in the management of Grenville may possibly be necessary, but dissensions among shareholders and officials, on personal grounds, can only tend to injure a property that must ere long pay all concerned for their patience and outlay.

My humble advice to the shareholders, therefore, is this—attend the special meeting and decide *for yourselves* upon matters brought before it. Do not upon mere *ex parte* statements send to strangers proxies to be used any how, and in a way that may only tend to bring your affairs into confusion, and the mine into bad odour.

There can, I imagine, be no objection to a committee of management consisting of three *independent* shareholders; and this would meet all that is required at present. ARGUS.

WEST MARIA.

SIR,—I am glad to seen in last week's Journal a protest against the purchase of a boring machine for the above mine. Let us leave such costly experiments for rich mines, like Dolcoath. In West Maria let the 104 and 93 be driven vigorously both east and west of shaft. Resume operations also on the Devon Consols lode, and we shall soon see West Maria in a first-rate condition.

—— A LARGE SHAREHOLDER.

MINING IN CARDIGANSHIRE.

SIR,—In my last, reporting news of this district, I promised ere long to continue it, but until now other business has detained me.

The first I beg to bring before your readers is the GREAT WEST VAN. This mine is to the south of Plynlimmon about two miles, the road from Llanidloes and other districts running through the sett. The chief workings are principally carried on in the western part dipping away towards the plain between this mine and the West Esgair Lle Mine, of which we will come to anon. In the 46 fm. level, west of old shaft, the ground has decidedly greatly improved, the lode turning out some beautifully defined branches of bright silver-lead ore, the ground as porous almost as a sponge; a change for the better may be looked for daily. Eliza's shaft is being sunk with all speed below the 34, and may shortly be expected to reach the next level. I would think by looking at the two lodes north and south that by this shaft being sunk say down to the 70 or 80 fm. level the junction of the two might be met, and doubtless thousands of tons of rich mineral could be raised at a good profit, since it appears by looking carefully into the strata that all the best lead-bearing ground lies to the west of the old mine. There is a cross-cut being driven in the 34 by which the manager, Capt. Hodge, expects to intersect the other lode, which may be soon realised—only a few fathoms more driving, and who knows the result? At all events the ground they are now passing through is highly mineralised, full of healthy fissures and thoroughly impregnated with fine fibres of rich silver-lead ore. Since mining for so long a time has been very dull, we must hope by seeing this and other mines I shortly shall mention improving, that better times are coming. I sincerely hope so.

WEST ESGAIR LLE comes in rotation next to the Great West Van, although not on the same lodes, but in the same valley. In the eastern part of this mine a shaft has been sunk from surface passing through the adit, and still deeper—I think about 20 fathoms under adit; this shaft is known by the name of Hamilton's shaft. I have seen the lode in parts of this shaft, worth 3 tons of lead to the fathom, and yet this part of the mine is abandoned, and water up to poppet-heads, and the few hands that are kept are taken to the old mine to work upon black jack. Since I cannot make out head or tail of their present working, I will away further to the west, and next is the CROWN MINE, equally as bad here. Go on again, we cross the Rheidol, and at once scale the hills to the ABERYSTWITH MINES, once known as the Nanteos Consols, Bwlch Gwyn, and Penrhew Mines, but now one good and promising concern. The lode upon which the Aberystwith Mines has been worked upon for the best half-century is precisely the same as West Esgair Lle, which is no other than the Great Van itself, having been traced many times. I cannot say what number of tons have from time to time been sent away from these mines, but of this we may be certain that thousands of tons have been taken away even in my day in Wales. For the last three years I had been their agent on the mine day and night, and I know of every hole and corner in the mine, which is now down to the 40 under adit only. East and west have been driven upon for about 60 fms. or more; I cannot say exactly without books, or again measuring the ground, but this does not matter for a fathom or two. In the back of the bottom level east is a stope, in the centre of which may be seen a vugh, or open crevice, filled and plated each side with the most beautiful shapes and forms of every description as were ever seen in this district, consisting of cubes of lead upon carbonate of lime and ribs of sulphur, some of which you might with good soap shave yourself, and cut your fingers, or anything else, as I did last week only. In the western end they are doing nothing at present, but, no doubt, will start again ere long, especially if the ore seen in the levels above will make its way down to succeeding levels, and again become one of the 'first mines in Cardiganshire. In the back of the adit level the lode upon the averaging of the stope, which is close upon 20 fms. long, is worth over 1 ton the fathom; some places, of course, not so good, other places worth 3 tons to the fathom, so that by putting it all over at 1 ton to the fathom I can candidly say is a fact. Now the 10, under adit, had been driven by the old and former company. Of course from the 20 was also driven by the same party. In the back and bottom of this level are the remains of stopes, but most all taken away up to the level above. The present gentlemen have been persuaded to continue this level, so as to come on under the beautiful back of the adit, and after driving 2 ft. or less the men have come upon a most beautiful lode of spar, carbonate of lime, and lead ore, worth from 12 owts. to 1 ton to the fathom. Of course the lode being not allowed to come down as yet no one can say positively the value, but as much as I saw last week I am perfectly satisfied that there is a good mine for them still in store. Then, again, the stopes in the back of this level when they have driven to come under the stope in the back of the adit, 20 fms. backs, run a winze down from the adit level for ventilation, &c., then continue the bottom level, also the one to be started in the 30, and ground belonging to this company to the west a quarter of a mile from their engine-shaft before they meet with their neighbour.

THE YSTYTTUEM COMPANY.—I can only say if this is not worthy of a good trial where can I go to see a property that is? I must go out of the county. I wish them every success. Although they have finished with my services, yet I should be glad to see the mine turn out what I have long ago prophesid—second to none in the county. And this brings me to the YSTUMTUAN MINE; but, being a company to themselves, leave them alons. They are doing their best, having sent from the mine within the last few months 80 tons of lead. I will, on my next writing, give you some particulars about other mines in the immediate neighbourhood of Ponterwyd. SAMPSON TREVETHAN, C.M.E.

Rheidol Cottage, Aberystwith, Nov. 9.

WHEAL WREY, LUDCOTT, AND NORTH TRELAWNY MINES.

SIR,—In reply to "Expectans" in last week's Journal, and for the information of others who may have been induced to take shares, I would remark first, as far as expenditure on the mine is concerned, there has no work been done. The local promoter some months since, before the shares were allotted, purchased as a speculation, and on his own account, the 80-in. pumping and a drawing-engine at the sale of Wheal Mary Ann Mine, where it still remains in *status quo*, and has since, by some amalgamation, been transferred or purchased by the directors on behalf of the company, bearing acceptances of different dates, and without the sanction or concurrence of the shareholders. These, with other preliminary expenses, are the only supposed liabilities we are called upon to pay. There has been no general meeting since June 21 held here. After the one protested against and adjourned from London for the allotment of shares (one of the directors having previously resigned) the four remaining in office were determined to proceed to allotment, in direct opposition to the majority of the shareholders present, who were out-voted by the large number of free shares held by the promoters and directors. It is also doubtful, if the last call of 5*s.* per share is duly made in accordance with the Stanaries Act, regardless of the 6 per cent. extra charge if not paid by to-day, on what number of shares it is not stated.

If the information given me is correct, which has emanated from one of the initiative, it appears that out of the four directors who constituted the last board meeting the two locals were in favour of its being wound-up, whilst the two London directors were opposed to it. What object the latter can have in view is only known to themselves. The majority of the local shareholders have refused to pay any calls from the commencement, and have formed a committee, appointed treasurer and solicitor, and acting under his advice, have arranged to defend any ulterior proceedings, and are also prepared with the necessary preliminaries for filing a petition in the Stannaries Court (not voluntary liquidation) for the purpose of winding-up, which is the only means that can be adopted for a fair adjustment and equal distribution of costs incurred, and prevent any other litigation or further unnecessary expenditure, and meet the wishes of the local shareholders generally.

Liskeard, Nov. 10. —— NON-EXPECTANS.

WHEAL WREY, LUDCOTT, AND NORTH TRELAWNY.

SIR,—The affairs of this company seem "awkward," to say the least. On the one hand the directors are "threatening" the shareholders if they do not pay the calls; on the other, no meeting having been convened, the shareholders are quite in the dark as to the state of things, with some doubt as to the legality of proceedings. Can someone advise as to the best course to pursue under the circumstances? Doubtless there are many, like myself, whose last wish would be to hamper the directors in the fulfilment of their onerous duties by the non-payment of calls if all was straightforward. JOHN BULL.

DEVON GREAT CONSOLS.

SIR,—Much has been said of late by the investing public as to the future prospects of this once famous mine, and attempts have been made, with some success, to put up the market value of the shares. It is true that the new south lode at the Emma part has opened productive for some fathoms in length and height, but it is now currently reported that the rich lode in the winze now sinking on the south lode in the 145 towards the 160, and which has reached the depth of about 10 fms., has become intermingled with capel, and very poor. The 160 is some few fathoms behind the winze, and about 5 fms. deeper, and it is now feared (naturally so) that the lode will contain capel between the bottom of the winze and the 160 end, as the lode there is also poor. The eastern drivages are at present not showing very good indications, and the present rate of returns will speedily speak for themselves. As to the sinking of the deep shaft for tin, not much encouragement has as yet been seen for the production of that mineral. J. D.

London, Nov. 10.

SAINT PATRICK MINE.

SIR,—I have read with considerable interest the scientific reports on the virgin district of Holywell, in which this mine is situated. It is expected every hour that the rich east and west lodes will be intersected immediately, the indications at the 90 fm. cross-course, and at the 120 also, being most encouraging, and showing certain indications of the coming riches so well known in North Flintshire lead mines. This mine must be a very attractive speculation, and doubly so, inasmuch as but 6500 shares are issued, and these are firmly held. The draining of Saint Patrick mine can be represented as zero. The cost of returning the ore—about 13*s.* per ton—and the high price which this lead ore commands render it apparently a very

easy matter to return large dividends at a minimum cost. I should be glad to read more in the *Mining Journal* on this property from an abler pen than my own.
INVESTOR.

SANTA BARBARA GOLD MINING COMPANY.

SIR,—The notice of the meeting of the Santa Barbara Gold Mining Company, in the Journal of Saturday last, represents me as saying—"And it is hoped that as the mine is more opened out, before many months have elapsed, between 12,000 and 15,000 tons of mineral will be crushed monthly." This number is a mistake of the printers, and should have been 1200 and 1500 tons (hundred *not* thousand). Be good enough to note this correction in your next issue, and oblige—
Liverpool, Nov. 8. EDGAR S. HOLLAND, Managing Director.

[For remainder of Original Correspondence, see to-day's Journal.]

Meetings of Public Companies.

CAKEMORE COLLIERY COMPANY.

An extraordinary general meeting of shareholders was held at the offices, Fenchurch-street, on Nov. 6,

Mr. CHARLES MORRIS in the chair.

Mr. ALFRED W. SNELLING (the secretary) read the notice convening the meeting.

The report of the directors stated that the board have thought it well to call the shareholders together without waiting till the period when the ordinary general meeting would be due, in order to explain to them fully the very favourable position which the colliery has now attained. It was true that this has taken somewhat longer than was anticipated, owing chiefly to the finding of water in the old workings (accumulated during the nine or ten years that the colliery has been standing idle) so pocketed that it could only be drawn out with safety to the men through small bore-holes. This has, however, now been accomplished, and four gate-roads have been driven into a seam of coal 9 ft. 6 in. thick, which proves to be of admirable quality—in fact, above the average of the district, and so hard that it will, when worked in quantities, turn out an unusually large proportion of coal, yielding little, if any, fine slack, and but a small proportion of rough slack, an important element in the returns, as coal realises about double the price of rough slack. This 9 ft. 6 in. seam is apparently a portion of the Ten-yard coal, from the upper part of which it is separated by a rock parting, forming an admirable roof, and rendering the winning of this coal very easy and inexpensive. Evidently the former workers of the colliery thought when they came to this rock parting that they had reached the bottom of the Ten-yard coal, and did not, therefore, cut through it in their workings, the consequence of which is that this valuable seam has been found intact, and the directors beg to call especial attention to this unexpected discovery as adding greatly to the value of the colliery. This, however, forms only about a third of the full average thickness of the Ten yard coal, which seam remains intact under about two-thirds of the estate, besides the massive ribs and pillars of coal left in that portion which was partially worked some nine or ten years since by the former proprietors. In addition to this there are the well-known seams of the district, including the ironstones and fire and other clays; such portion of the former as have been opened upon proving to be as of good quality as any in the county, while the latter are very valuable, and their quantity practically inexhaustible.

As regards plant and machinery, the directors have to report that—since obtaining possession of the property—the shafts have been cleaned down and repaired, and guides fixed in the drawing shaft down to the 90 fm. level; new pit-heads erected; the engine and tramway to the wharf on the Birmingham Canal put into complete working order; the boiler repaired; new wire-ropes fixed; the engine and boiler houses, office and weighing-machine, stables, and smiths' and carpenters' shops put into complete repair; new tramway wagons purchased, and, in short, everything put into good going order. Immense advantage would accrue to the company if the directors could be put in possession of some further working capital, which—now that the output (already about sufficient to cover cost) can be gradually increased to almost any extent as additional faces for working the coal are opened—will obviously be required to meet the increased pay naturally attendant upon such enlarged output, which cannot be repaid by the collection of the coal accounts under six or seven weeks. There are also two other objects for which the directors strongly urge the raising of additional capital. To put into complete repair and going order the brickworks (comprising engine, pug mill, three large kilns, the completely-flued foundation for drying-shed) which are already in existence on the colliery, and which, according to tenders made to the directors, can be completed for under 1000*l*. The manager, one of the directors (who, as being himself a large contractor and brickmaker, is thoroughly competent to judge, and, indeed, every practical authority who has investigated the matter, reports that as soon as these works are completed a net profit of from 60*l*. to 80*l*. per week can, with the most absolute certainty, be forthwith realised. This would alone suffice to pay more than 5 per cent. upon the whole issued capital, even when increased by the addition thereto now proposed, and is entirely irrespective of the much larger return realisable from the coal and ironstones; also, to enable the directors to purchase a lease of the adjoining property, all or nearly all of which can be worked from the Cakemore shafts, and a portion of which dovetails into the Cakemore property near the engine in a manner that makes it especially desirable for this company to possess it. The seams of coal and ironstone and clays are practically the same as in Cakemore, and there is every reason to believe that the 9 ft. 6 in. seam discovered intact in Cakemore will be found the same there, it having been proved close up to the boundary; indeed, it is stated that but a small proportion of this colliery was ever worked, and the very fact of its having no outlet either by railway or canal corroborates this, as the amount of sales that could be made by carts during the time it was open would form but a small proportion of the coal to be found in a Thick coal colliery of that acreage. The drawback to its working hitherto has, in fact, been the absence of canal communication, which Cakemore can supply: and this fact, combined with its being workable from the Cakemore shafts—while rendering it far more valuable to this company than to an independent buyer—accounts for the very reasonable terms on which it is offered.
MANAGER'S REPORT.

I am a much better hand at mining than writing, and the draft of your report to the shareholders forwarded to me expresses so much better than I could do the information as to the position and prospect of the colliery, which I have from time to time given you, that I cannot do better than say that I fully confirm it, adding that the colliery never looked better, and that the further the gate roads are extended, the more solid and compact does the coal become.—JOSEPH HACKETT.

The CHAIRMAN said the report was so full and exhaustive that he would content himself by congratulating the shareholders upon the satisfactory condition and prospects of their property. All such enterprises were more or less speculative; but really, as a company, this was now almost in a paying condition. They had begun to raise coal, although not yet in quantities sufficient to pay the expenses; but in a short time, probably by Christmas, a better quality would be raised, leaving a remunerative profit. Finding themselves with insufficient funds to purchase the neighbouring colliery, the board invited the co-operation of the shareholders to enable them to do so. There could be no possible doubt as to the great value of the adjoining property, nor the incalculable advantage that would result to this company by its acquisition. The Articles of Association empowered the directors to complete the purchase; but, rather than act upon their own responsibility, they preferred taking the opinion of the shareholders, and obtain their permission. It was equally desirable that the brickworks should be completed; according to all reports they would certainly earn a good profit, a very small expense would complete them, and as soon as completed a large and profitable trade could be at once commenced. He would now move that the report be received and adopted.——Mr. LARCHIN (a director), in seconding the proposition, said that at first the company was in the land of probabilities, but they had met to-day having in view something rather more tangible. The main object of the meeting was to acquire an additional property, and certainly every shareholder should put his shoulder to the wheel to assist in the purchase. He was happy to hand in a cheque for 285*l*. for 32 shares for himself, and for 25 shares on behalf of friends of his, and he hoped each shareholder would come forward and subscribe in the same way.

The CHAIRMAN, in reply to questions, stated that less than 1000*l*. would put the brickworks in effective order. The additional property now proposed to be acquired comprised about 50 acres, making the total acreage 80; it apparently had precisely the same seams successfully worked in the adjoining property. It should be clearly understood that the existence of the coal had been proved, and that gate-roads were being driven daily, laying open more coal ready to be taken away. Many thousands of tons of coal had been laid open, and they were daily extending the working faces; the manager told them the boundary would probably be reached by Christmas, when the coal would be worked back—by that time they would be returning 200 tons a-day.

Mr. HONCK asked if the Chairman could give any information of the financial position of the company?——The CHAIRMAN said the present was not the meeting at which accounts were submitted, because they were not made up to December. But he might add the company was now improving in its financial position, and the coal would continue to help the weekly cost-sheet.

Mr. HONCK asked if there were many shares unallotted?——The CHAIRMAN said there were about 18,000*l*. worth. All they required to raise would be about 6000*l*., as they did not wish to raise more capital than absolutely necessary, as the less raised the larger would be the percentage of the dividends.

Mr. KING CHURCH said the directors had got the property into a position ensuring success, and had not been endeavouring to raise capital until the statements in the prospectus had been verified by results. The shareholders were now asked to come forward and assist; in doing so they would be acting with justice to themselves and fairness to the directors.

The CHAIRMAN thought if each shareholder would agitate among their respective friends the necessary capital would be forthcoming, and the company placed in a comfortable condition.

Major General MAXWELL, C.B. (a director), observed that he had visited the colliery, and had satisfied himself as to its value and capabilities—hence he had increased his original holding.——The report was adopted unanimously.

The CHAIRMAN then proposed that, it being most desirable the company should acquire a lease of the adjoining property, the directors take the same upon the terms offered so soon as they saw their way clear to secure its purchase.——Mr. HONCK seconded the proposition, as there could not be a divided opinion the purchase of the property would be of very great advantage to the company—that was obvious to anyone who had seen it.——The proposition was put and carried unanimously.

Mr. MINSHULL proposed that the best thanks of the shareholders be given to the Chairman and directors for their continued attention to the welfare of the company.——Mr. HONCK seconded the proposition, which was put and carried unanimously.

The CHAIRMAN, having acknowledged the vote, said the board were much indebted, more especially to one or two shareholders, for the exertions made on behalf of the company, and he sincerely hoped their friends would be rewarded with the success they deserved.——The meeting then separated.

EMMA SILVER MINING COMPANY OF UTAH.

The general meeting of shareholders was held at the London Tavern, Bishopsgate, on Wednesday (Commissary-General R. M. GARDINER in the chair), when, after some preliminaries, the CHAIRMAN said that when he was asked to join the board in June, 1873, he had strong faith in Prof. Silliman's opinion that they had a fissure vein, and not merely a pocket of ore, but his colleagues and himself gradually became satisfied that gross imposition had been practised on the public of this country. In looking into matters they found that the company had been charged for a claim against which Mr. Park and General Baxter had given an indemnity, and that the ore stipulated in the prospectus and deed of sale as deliverable was not forthcoming, and had never, in fact, existed. Proceedings were in consequence instituted against the vendors to recover the value, and Mr. Gardiner, with Mr. Albert Turner, the company's solicitor, went out to New York with all the originai papers bearing upon the case. While in America an investigation was made, upon the result of which a suit was instituted for setting aside the "contract under which 1,000,000*l*. sterling had been paid for a mine well known by the vendors to have been not worth more than 150,000*l*." Mr. Gardiner contended that had the money been spent in exploring the mine there would have been no means left for unmasking the plot of which they had been the victims. He cautioned them not to be led astray by the *ignis fatuus* of a further large development of ore. Their mine had been burrowed around by five distinct tunnel companies—two on the north-west, one on the north-east, and two below the empty cavity that remained to them, and no discoveries of any value have been made. These tunnels had saved them in explorations large sums of money that would have been utterly thrown away in proving the barrenness of the rock in which the Emma pocket is situated, and they had in a great measure solved the geological problem which they had been informed would require much time and money had they still desired to attempt its further solution.

But by far the most important point in the Chairman's speech was that which explained the legal status of the several classes of shareholders, and this every shareholder will do well to seriously consider. The principle can be stated in a few words. No claim against the vendors, promoters, or others concerned in the establishment of the company can be sustained in respect of any share or shares which have been sold or transferred since they were originally allotted. It will, of course, be understood that the decision to this effect has not been given by the Courts, but it appears so obvious that those who purchased shares after the property was fairly in the hands of the company could have no ground of complaint against those connected with the original transfer that there is little room to question the accuracy of the Chairman's views.

The resolution for the reception and adoption of the report and accounts having been moved and seconded, Mr. MACDOUGALL proposed as an amendment "That this meeting expresses its entire disapproval and repudiation of the mode in which the business of this company has been carried on by the directors, and especially in reference to the use of the funds of the company in the conduct of legal proceedings in America, contrary to the known wishes of the shareholders and the directors' pledges that the funds should not be employed in law expenses, but to the development of the mine; and this meeting resolves that the report and accounts now presented to the meeting by the directors be not adopted."

Speaking upon the amendment, Mr. BURNAND said that if they failed against the American vendors, though he was almost certain that they could not fail, but must obtain a verdict, with very heavy damages, and the people were perfectly capable of paying over those damages if they secured them. If they had lost the shareholders' confidence the necessary consequence would follow. He continued: If you bring in five, six, or seven strangers, perfectly ignorant of the affairs of the company, how many mistakes will be made? How many interests will be deferred? Consider whether it would not be more prudent to strengthen the board of directors by the election of an additional number of gentlemen. (*No, no.*) At present we are only three; if you put four gentlemen on the board to act with us, if we are wrong we shall be outvoted. If we are right, I am quite sure every honest man will give us the benefit of his support.

Mr. ATTWOOD stated, in reply to a question from a shareholder, that the appliances had not been taken away from the mine; they were still on the ground, but they were held by Messrs. Park and Company. He ceased working the mine about thirteen months ago.

Mr. OMEROD remarked that a petition for an order to wind up the company was strongly opposed by the solicitors to the company on behalf of the company. Afterwards, without any consultation with the shareholders, the solicitors for the company supported the petition. Now, he wished to know whether that change of conduct on the part of the solititors to the company was in consequence of any resolution on the minutes?——Mr. TURNER (the solicitor) said that the reason of the directors being advised to turn round was in consequence of their hearing, while the petition was pending, of the seizure of the mine by Mr. Park. They were advised by counsel that the petition should be acceded to. Rightly or wrongly, that opinion of counsel was endorsed by Vice-Chancellor Malins, and he thought that was quite sufficient justification for any solicitor.

Mr. TAYLOR, referring to the prospects of the mine, said that he did not think it so worthless as it had been represented to be. In an adjoining mine, "The Integrity," discoveries had been made. A friend of his, who had visited the district, stated that the Emma was the most valuable mine out there. With regard to Mr. Hutton, he supported the election of that gentleman to a seat at the board, and had regretted it ever since, because it had been rather a thorny couch. He thought they were playing at cross purposes. He believed it would do some good if Mr. MacDougall would join the board, and use his money in developing the mine. He knew it was very difficult to form a correct opinion, but he had no reliance on the reports they had had from the mine.

Mr. SPRATT said that they had seen what the directors had done on the one side, and the policy of Mr. MacDougall on the other. It occurred to him they were in a most critical position, and an immense amount of discretion was necessary on the part of those gentlemen who might have the management of the concern. When he came into the mine it was on the report of Prof. Silliman, and he believed it was a good mine. He was not an original shareholder, having only given 2*l*. a share for his shares, believing that he would make some money out of them. He thought to-day, unless some cool-headed man could be found to guide them, they would get into a great mess. It seemed to him, looking at it calmly and dispassionately, the directors had done their very best. He did not know them, and had no interest to serve. As a common-sense business man, he wished to make a suggestion, and they might take it for his value. It seemed to him the directors had taken the best opinions they could get, and had commenced an action against the vendors. This he thought was the right course. But they should take up the question of going against their agents, and prosecuting them to the very utmost. He thought the directors had done right, and did not think that Mr. MacDougall, who seemed to have a passion for law, could have done better. There was one little difference in Mr. MacDougall's statement. Previously he stated he would pay the costs of the suit, now he said he would find 10,000*l*. He (Mr. Spratt) did not know whether it would be more or less. He hoped it would be more. He was a shareholder in the Richmond when they spent 30,000*l*. in law, and, if they are going to fight, they must be prepared with a long purse.

Mr. MACDOUGALL reminded them that the Emma Company has only 2500*l*. left to carry on, and the proposal made was that these funds should be kept to manage the affairs of the business, and if there is anything spent in law costs that he would pay them.

Mr. MacDougall's amendment was ultimately carried by 47 against 18, and also carried when put as a substantive motion.

Upon the proposition of Mr. MACDOUGALL, it was resolved that Alexander MacDougall, Dr. Dunhill, Capt. Sylvester L'Amy, T. Hope Robinson, and Harrison Solly be elected directors. Amongst other letters one was read from Messrs. Lake on behalf of Messrs. Brydges Willyams, Leigh Pemberton, and Col. Stanley, enclosing a cheque for 1500*l*. as restitution for the amount received by them by way of qualifying them as directors, and a further letter to Messrs. Sole, Turners, and Knight, stating that if they had known that the circular announcing the payments to these directors was to have been sent out they should not have paid it. A letter was also read from Messrs. Grant Brothers and Co., addressed to the secretary, in which they said:—"Our attention has been drawn to a circular issued by you, relating to the affairs of the Emma Silver Mining Company (Limited), in which you introduce the name of our firm. In addition to the statements made by you being inaccurate in many particulars, there is no justification for your saying the firm of Grant Brothers and Company had anything to do with the Emma Mining Company, and we request that you will rectify that forthwith."

The CHAIRMAN, in reply to an enquiry, said that the balance at the bank was 2478*l*. 14s. 11d., exclusive of the 1500*l*. returned by the directors above mentioned. The 1500*l*. was at Mr. Turner's bankers, and Mr. Turner expressed his intention of retaining the lien upon that money for the balance due to him.

Mr. HUTTON said he had received Mr. Turner's accounts that morning, and the total amount due was 1008*l*. or 1009*l*. He had handed Mr. Turner a cheque for 400*l*.

Mr. TURNER, in reply to a question, stated that the cheque for the 1500*l*. was payable to his firm, and to their order.

Mr. HUTTON said he did not know when he handed the cheque for 400*l*. to Mr. Turner that he had received the cheque for the 1500*l*., and he and the other directors entirely repudiated Mr. Turner's conduct in the matter.

Mr. MACDOUGALL suggested that perhaps there was some arrangement between Mr. Lake and Mr. Turner that the cheque should be made payable to the solicitor instead of the secretary of the company.

Mr. LAKE replied indignantly: There was no arrangement of the kind. I acted as solicitor for Capt. Stanley and Pemberton and Brydges Willyams, and I paid the 1500*l*. to the person who demanded payment in the name and on behalf of the company. That person was Mr. Turner, and to him I made the cheque payable, in accordance with the usual practice.

The retiring directors, Mr. Turner, and others shortly afterwards left the room.

The second division of the meeting was presided over by Mr. ALEXANDER MACDOUGALL, who in his opening remarks observed that all that was left of the wonder of the world—the Emma Silver Mining Company—was 2470*l*. All the tools had been sold, and there was not another penny-piece. It was indeed fortunate that some gentlemen had been found kind and courageous enough to step forward. He would like to know what was to be done with the 2500*l*. and no mine—nothing, only a board of directors. He wanted it to be clearly recognised that this was the wreck in which the company was left. Replying to the enquiry whether he still adhered to his liberal offer, Mr. MACDOUGALL said: What I do out of my own private pocket is another thing. I am now in the position of Chairman of a company before the shareholders. I wish them clearly to understand what the gentlemen who have been kind and courageous enough to come upon this board with me have undertaken with me as a board. Upon being asked for a plan, he said: I am in a position to propose a plan, and have been in a position to carry it out, but I have had every obstruction to it. I have asked four gentlemen now to accept the responsible position of directors of this company, and before I go to this plan I wish to have it very clearly understood whether anybody has anything else to propose, because I am not going to allow these gentlemen to be exposed to any recrimination afterwards. There is only 2500*l*. left in this thing. There is no mine, no nothing, but a bare shilling a share left.

Up to this time compararatively little reference had been made to the mine, but Mr. APPLEGARTH now said that he thought Mr. MacDougall was wasting time, and continued:—I disagree with you, Mr. MacDougall. In the first place I do not agree that you have no mine. That the late directors have succeeded in spending all the money is quite right, but you have the mine left. You have a mine there, and if ever this company is fortunate enough to get a committee to develope the mine, I have not the slightest doubt you will find it a very good one, but I do not think you will be able to do that by speculating what little money the company has in law.

After some further discussion it was resolved to appoint Mr. Snell solicitor of the company instead of Messrs. Sole, Turner, and Knight. It was also resolved to ask Mr. Burnand to resume his seat at the board; that until the next annual meeting the directors receive no remuneration for their services, and that the meeting be adjourned to Dec. 8.

The usual complimentary vote of thanks to the Chairman terminated the proceedings.

GREAT WHEAL LOVELL MINING COMPANY.

A general meeting of the shareholders was held at the offices, Gresham Buildings, Basinghall-street, on Wednesday,

Mr. BIDDER, jun., in the chair.

Mr. SHARP (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The accounts made up to Oct. 9 showed a debit balance of 1643*l*.

Captain Joseph Prisk says—The cost for future working, including bills, will not exceed 150*l*. per month, with the present staff, and now the mine is sunk to the depth where the tin in paying quantities is usually met with, I think by bringing down the new shaft (which will enable us to work with greater economy and dispatch), the mine can yet be made a success. Number of hands employed are as follows:—Tutwork, 29 men and 3 boys: engine working, 2 men; landing and filling, 2 men; spalling and general surface work, 1 man; smith, 1 man; at stamps, 1 man, 3 boys and 3 girls—Total 45.

The CHAIRMAN said he held a considerable interest in the company, and confessed himself very much disappointed at the result of the working for the past four months; it had appeared likely better results would have accrued. The accounts showed they were working at a very heavy loss, and he had been asking himself what were the prospects for the future, and whether the time had not arrived when they should go any further. He confessed he was not disposed to venture much more money in the concern, but as another month had been commenced last Saturday they would not wind up until then. If the expenses could be rendered less burdensome he possibly might be willing to go on two or three months longer to test the point referred to in Capt. Prisk's report. Subject to that consideration he had come to the conclusion the time had nearly arrived when operations should be discontinued. Probably if they had a large capital, and carried down the shaft some 30 or 40 fms. a fine mine might be opened up.

Capt. PRISK confessed his disappointment, but still he thought as the shaft had been sunk to the 56 it would be wise to try a few fathoms. There was also the north lode cut in the 30; that could be driven very cheaply. If they did not get some tin to pay he should advise only those two points should be continued.

Mr. CATON asked what amount of tin could be reasonably guaranteed from those two points?——Capt. PRISK said the lode would yield 12 cwts. per ton.

After some further discussion the accounts were passed and allowed, and with the report were ordered to be entered on the minutes.

A vote of thanks to the Chairman closed the proceedings.

THE LOVELL MINING COMPANY.

A general meeting of shareholders was held at the offices, Gresham Buildings, Basinghall-street, on Wednesday,

Mr. BIDDER, jun., in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed. The accounts showed a balance of liabilities over assets of 792*l*. 15s. 7d.

Capts. Joseph Prisk and Edward Kempthorne say—Since your committee placed the management of the mine into our hands (which is about eight months), a large amount of absolutely requisite work has been done in opening up the mine eastwards, by driving levels, sinking winze, &c.; our principal points of operation being at that time close to the boundary. We have also done a great amount of dead work—driving the 30 east, and sinking below the level for the purpose of cutting the ground into sections, which will enable us to work it more advantageously, and with greater economy; we can fairly say a new mine has almost been made. A new smith's shop and office has been erected, which have increased the cost during the last four months. Before the communication was effected by the rise with the 30, our ventilation was bad, greatly impeding our progress; we are pleased, however, to say the mine is now thoroughly ventilated, and we are in a position to send a much larger quantity of tinstone to surface, which will enable us to largely increase the returns, and with a little advance in the tin standard will enable us to make a profit. Number of hands employed are as follows:—Tutwork, 33 men; wheeling, 1 man and 2 boys; carpenter, 1; smith, 1; spalling, 3 men; general surface work and brusing samples, 1 man; landing and filling, 2; at stamps, 1 man, 14 boys, and 4 girls. Total, 63.

The CHAIRMAN said the accounts now submitted had been circulated among the shareholders. The costs had been charged up closely, they showed a loss on the five months' operations of 600*l*., attributable to the excessively low price of tin, and to additional outlay in placing the mine in a position enabling the returns to be made to the best advantage. The claim against Messrs. Bartlett and Chapman stood as at the last meeting. When Capt. Prisk took the management of the mine the shaft had been sunk to a depth of 40 fms., where the boundary had been reached. The drivage in the 12 had been stopped because unprofitable, and the 30 eastward had been discontinued because of the granite. There was only one point—the 40 eastward—of any value whatever. Hence for the first two or three months they had really been in a corner. Under these circumstances the returns had been kept up pretty well, as round about the shaft there had been a pretty fair bunch of tolerably good ore. It so happened that the boundary eastward trended away very rapidly from them, and their course was to drive as fast as possible eastward; a winze already sunk 4 fms. was being continued in order to open further levels, but they had not been in a position to commence that until about two months since. The valuable lode in the bottom was an encouraging feature, and the indications appeared to support the opinion that the bulk of the tin would be found eastward in the Lovell Mine. In the costs now charged considerable sums were included for absolutely necessary work, which had not brought returns of tin—works essential for the development of the mine. He then referred to the various points of operation (fully detailed in Capt. Prisk's report), referring to the new lode as a feature of considerable importance, and concluded by stating that the shareholders need not be discouraged with regard to the present prospects—on the contrary, there was reason to hope the mine would shortly develope into something better.

Mr. BLACKETT asked whether, apart from the dead work, any of the tinstuff was being raised at a profit?——Capt. PRISK said the expenses had been incurred to enable them to begin to realise a profit.

Mr. MURRELL asked if Capt. Prisk thought he would be able to pay expenses for the future?——Capt. PRISK considered they would be able from the first month to return 4½ tons per month, that would fetch 225*l*.; the costs were about 200*l*. per month.

Mr. BLACKETT said they were exhausting the mine without any profit, whereas if they deferred selling tin till the price got better a profit might be realised.

The CHAIRMAN said they were working the mine while tin was low in price, but it must be raised whenever they could see a profit.

Capt. PRISK said one of the great impediments had been the very bad ventilation in the mine, so as the men could not properly work. The mine was now thoroughly ventilated, and at least one-third more work would be go out of each man.

Mr. MATHESON visited the mine last autumn—he believed they possessed a valuable property, and could be made to pay with tin even at its present price.

The CHAIRMAN hoped they would be able to decrease the deficit, and commence to do a little on the other side.

The accounts were passed and allowed, and, with the report, were ordered to be entered on the minutes.

The CHAIRMAN said a call of 2s. 6d. per share would not wipe out the debit of 792*l*. A call of 2s. 6d. would realise 520*l*.

A call of 2s. 6d. per share was made.

A vote of thanks to the Chairman and committee closed the proceedings.

EAST POOL MINING COMPANY.

A two-monthly meeting of adventurers was held, on Monday, at the mine, when there was a very large attendance. The dinner question had created some little amount of unpleasant feeling, which it was expected would have been exhibited at the meeting; but the subject was discussed with thorough good temper, and the local shareholders reconciled themselves to the loss of their dinner with an equanimity and good temper which did credit to their discretion. To have fought the question would have only been to court certain defeat, for the committee could have carried their point by a decided majority, and so the "opposition" made the best of a bad bargain, and ate bread and cheese with an apparent relish.

The meeting was presided over by Mr. R. R. BROAD, of Falmouth, who, before reading the accounts, congratulated the adventurers upon the present prosperous condition of the mine. Notwithstanding all the material that had been brought to surface during the two months the ends and stopes were quite equal to what they were at the last account. They were aware that at the last meeting the labour costs and credits had a range of nine weeks, but only eight weeks were included in the present accounts, and, therefore, he regarded it as very satisfactory that they were now able to declare the same dividend. There had been a few breakages during the two months, and that had caused a little hindrance to their operations; but the agents, as usual, had been equal to all the requirements of the mine, and were entitled to the thanks of the adventurers at large. The accounts showed a profit on the eight weeks' working of 1515*l*. 9s. 11d., which, added to the balance of 54*l*. 10s. 4d. from the last account, made a total sum for dividend of 1570*l*. 0s. 3d. Out of this the committee proposed to declare a dividend of 4s. 6d. per share, which would absorb 1440*l*., and leave 130*l*. 0s. 3d. to be carried forward to the credit of the next account. The agents' report was next read:—

Great Lode: The 180 is driven east of engine-shaft 40 fms., and is worth for tin 35*l*. per fathom. The 180 is west of cross-course 7 fms., and is worth for tin 16*l*. per fathom. We have five stopes working in the back of this level—three east of shaft, worth on an average 20*l*. per fathom, and two west of shaft, worth 16*l*. per fathom each stope. The cross-cut driving south of this level continues favourable for progress. The sump winze commenced to sink in the last month below this level is down about 1 fm., and is worth for tin about 20*l*. per fathom. The 170, driving east on the north part of the lode, is worth for tin 14*l*. per fathom. The 170 west is without alteration. Five stopes in the back of this level are worth on an average 12*l*. per fathom.—Engine Lode: Two stopes in the back of the 160 on

this lode are worth on an average 16*l.* per fathom. The 155 driving east is worth fer tin 9*l.* per fathom.—South Lode: The 160 is driven west of long winze 19 fms., and is worth for tin and copper 8*l.* per fathom. The 160 is driven east of long winze 19 fms., and is worth for copper and tin 20*l.* per fathom. The 150, east of eastern cross-course, is worth for tin and copper 15*l.* per fathom, and the stope above this level is worth 15*l.* per fm. The 140, east of long winze about 11 fms., is worth for copper and tin 15*l.* per fathom. Two stopes in the bottom of this level are worth for copper and tin 15*l.* per fathom each stope. There are eight stopes working in the back and bottom of the 130, worth on an average for copper and tin 16*l.* per fathom each stope. The 120 is driven east of cross course winze 13 fms., worth for tin and copper 13*l.* per fathom.—JOHN MAYNARD (Manager), CHARLES BISHOP, WILLIAM TIPPET (Agents).

The report and accounts having been adopted,

The CHAIRMAN gave an explanation of the reasons why the dinners had been abolished. He stated that Mr. Dennis, a member of the committee, residing in Liverpool, recently received a letter from Messrs. W. Holland, Arthur Holland, J. G. Treweeke, and Jas. Cox, Liverpool shareholders, which was as follows:—"We, the undersigned shareholders in East Pool Mine desire to inform you, as the only member of the committee resident in Cornwall, that it is our wish you should represent to the committee the great aversion we have to the practice of giving dinners at the account meetings. We consider them very objectionable, as they must interfere with the working of the mine and the agents' time, as well as throw useless expenditure upon the shareholders. Hoping that our views will meet with your support, and that, if so, you will use your influence to have those dinners discontinued forthwith, we remain, &c." On the receipt of this letter, Mr. Dennis communicated to the committee, saying—"I have been especially requested by the Liverpool shareholders to advocate the discontinuance of the account dinners. In this I also quite concur, and, should this meet with your approval, I shall feel obliged if you will have a notice issued to that effect." Mr. Dennis was the largest shareholder in the mine, and, therefore, the committee had no right to disregard an appeal of this kind coming from that gentleman. Mr. Dennis and his Liverpool friends held no less than 2125 shares; the local committee held 990, and he (the Chairman) was authorised to speak in the name of shareholders holding 250 more, making a total of 3365 shares in favour of the proposal from Liverpool—a decided majority.

The CHAIRMAN: We are all bound to submit to the majority, and, therefore, I do not see that any complaint can be made.—Capt. JAMES: Notwithstanding that the majority must rule, I think it is due to all the shareholders that they should have been consulted upon the matter, and had this been done they would have submitted with better grace than they do now.

Mr. RULE proposed that the dinners be continued.—This was seconded, but the CHAIRMAN said he could not put it, and the PURSER appealed to Mr. Rule not to press it, as it would be defeated by an overwhelming majority. The better plan would be to instruct the committee to represent to the Liverpool adventurers what the feelings of the local shareholders were upon the matter.—On the understanding that this would be done, Mr. RULE withdrew his motion, and the subject dropped.

WHO IS THE CHEAPEST COAL MERCHANT?—In answer to a question from Mr. RULE, the PURSER said that they were now paying 17s. a ton for their coals.—Mr. RULE protested that this was an overcharge. He had been selling at 16s., and he would guarantee to supply the mine with as good coals at that price as they had been using for the last twelve months. They ought to tender for their coals as well as for their other supplies.—The PURSER said they paid 17s. because they could not get the same quality of coals at a cheaper rate.—Mr. RULE feared they were still under the coal monopoly, and, if so, it was a great shame.—Mr. A. RICHARDS (Portreath): How much do you say you will supply the mine for?—Mr. RULE: 16s. a ton.—Mr. RICHARDS: We can do it for 15s 9d.—Mr. RULE: And I'll do it for 15s. 6d.; but I am not going to bring down the price, and then have the orders taken away from me again. I am a large shareholder here, and am a coal merchant, and I consider I am entitled to an order, especially if I can supply the same quality of coals at a much less price than you are now paying. I have no wish to supply the mine if you will import your own coals, but I believe you are under the screw still.

Dr. MITCHELL said they had been well served by the Portreath Company for a long time, and were also under great obligations to them, because at one time they owed the company between 6000*l.* and 7000*l.*, and were never once pressed for the money. It would be the height of ingratitude, therefore, if they were now to go elsewhere for their coals when they were able to pay for them.

PNEUMATIC STAMPS.—Mr. SHOLL, of Manchester, attended, and gave a brief description of his improved pneumatic direct acting stamps, and expressed a desire that they might have a two months' trial upon the mine. The matter was left to the committee, who will probably arrange with Mr. Shool for a trial of the stamps.—*Western Daily Mercury.*

LLYNVI VALLEY COLLIERY COMPANY.—An informal meeting, convened by the secretary, was held at the Guildhall Tavern, on Wednesday, to consider what steps, if any, should be taken by the shareholders and applicants for debentures in connection with the petition for winding-up the company. It appears that the secretary appointed to succeed Mr. W. H. Forbes has not yet received all the documents belonging to the company, and that the vendor, Mr. Humby, claiming to be a creditor in respect of a mortgage for 10,000*l.*, which he holds, presented a petition to have the company wound-up. The secretary's solicitor having instructed his London agent to attend the meeting to give advice, Mr. Turner was present, but the secretary and directors being without information as to the company's affairs, and the secretary having left the copy of the petition at Southsea, where the offices of the company are located, there was some difficulty in giving an opinion upon its probable contents. Mr. Turner was, however, of opinion that as the petition was a creditor's petition, and as the shareholders were, legally speaking, not interested, the shares being fully paid-up, and the company not having any money to pay its debt, they could not usefully oppose the petition. The applicants for the debentures were desirous of recovering the moneys they had paid upon application, a condition of the subscription being that under certain conditions which had actually happened no allotment of debentures should be made, and the amount be returned in full. These moneys were paid into the Glamorganshire Bank by Mr. Humby and one of the new directors, and cheques have been drawn against it by them for the benefit of the company, but without procuring the counter-signature of the secretary. The bank appears to have treated the account as the joint account of Humby and the directors who acted with him, and declare they received no instruction to the contrary. The shareholders and debenture-holders contend that as Humby, the vendor, has acted as manager, and rendered no account of the moneys he has received, there is no evidence that the 10,000*l.* for which he holds the mortgage was due to him, or that the directors were empowered to give the mortgage at all. Mr. Turner considered Humby and the directors acting with him would probably be responsible for the return of the moneys to the debenture applicants, but recommended them to wait until the official liquidator was appointed, and then lay the whole matter before that officer. The meeting then separated.

WELSH STEAM COAL COLLIERIES (Limited).—A special meeting of proprietors was held at the Guildhall Tavern, London, on Monday, to take into consideration the present position and prospects of the undertaking. Mr. Richard Attenborough presided, and there was a large attendance of shareholders from Yorkshire, where the shares are chiefly held. The Chairman briefly stated the object of the meeting, and expressed his undiminished confidence in the concern. Mr. Hatch, stockbroker, of Leeds, addressed the meeting at length, severely criticising the past management. Mr. Gaskell, of Bradford, and other shareholders followed in a similar strain. Ultimately the meeting was adjourned for a fortnight, with a view to the completion of arrangements for carrying on the collieries under new and efficient management.

LAST CHANCE.—At the adjourned ordinary general meeting of shareholders, convened for Thursday, there was again an insufficient number of shareholders to form a quorum. A supplementary report stated that the board take this opportunity of drawing their attention to the state of affairs when the late board were compelled to retire, and the present directors were requested to take office. The mine was flooded by water, and in the possession of Mr. Davis, in accordance with an agreement made with the late board. No cash in London to meet the requirements of office expenses and payments to clamorous creditors; and to add still further to the anxious state of affairs, the late secretary suddenly disappeared, and many important documents and papers have not since been found. The accounts of 1873, as presented by the late board, not having been passed by the shareholders, it is impossible to render any other statement, the mine having continued in the possession of Mr. Davis ever since the present board accepted office: nor have we had any means of ascertaining the expenditure in Utah, so that the accounts rendered to you can only be accepted as a copy of a statement forwarded to us by Mr. Davis's manager. The directors felt bound to say that Mr. Davis has honourably fulfilled his engagement made with the late board, to provide funds for the expenses of the London office, which have been materially reduced, and we have no reason to doubt his continuing to do so. The board have not received any remuneration for their services as directors, nor do they intend accepting any until the mine be proved a prosperous and paying one.

BAMPFYLDE COPPER MINING COMPANY (Limited).—An extraordinary general meeting of shareholders was held on Tuesday, at the offices of the Company, Gracechurch-street, to confirm the agreement made by the directors with the Front Union (Limited) for the sale of the copper ore to be raised, and the old burrows now on the mine, which it was explained would be very beneficial to the Bampfylde shareholders. The annual general meeting will be held about the end of the month.

[For remainder of Meetings see to-day's Journal.]

STREAM TIN DEPOSITS IN AUSTRALIA.—It was mentioned in last week's *Mining Journal* that an extensive tin streaming deposit was about to be wrought by an English company, and the prospectus has now been issued, a considerable number of the shares having, it is stated, been privately subscribed. The Victoria Stream Tin Mining Company is to be incorporated with a capital of 100,000*l.*, in shares of 5*l.* each, to purchase the property referred to for 78,000*l.*, of which 23,000*l.* is to be in cash, and the remaining 55,000*l.* in fully paid shares. The deposits which it is proposed to work are stated by Mr. Armstrong, the Government Mining Surveyor, in his official report, to be "very rich and practically inexhaustible." This report has been confirmed by some of the leading mining engineers of the colony. The deposits have been practically tested by W. B. Greivesson, foreman miner, who was for some months engaged in superintending work upon the spot, and recently by Capt. Eddy, whose very favourable report was published last week. A mining lease, on the usual terms, has been granted by the Crown, and as much expense had been incurred in discovering these deposits, about 500 acres were granted, instead of the usual Government grant of 50 acres. This affords ample space for profitably employing a large number of men, and for underletting or selling portions to others, if thought desirable. The locality of the stream tin deposits comprised in this grant is about 70 miles from Melbourne. There is a good road for 50 miles, and a railway is in course of construction which will come within 20 miles of the property, and the Government is also forming a road for the remaining 20 miles. It is estimated that the company can raise 8 tons of ore per day for 300 working days per year, which would give 1200 tons of pure tin, and leave the company a net profit after providing for redemption of capital in 14 years, of 46,375*l.* per annum. It is mentioned that it should be especially borne in mind that the workings being confined to surface operations, and the tin obtained by washing, no engines or costly machinery are required, nor will shafts nor levels be needed. Contrasting this with even the most successful of English mines, the superior value of this property will be self-evident, it being impossible in any English mine to return tin ore to the smelters at a less cost than 50*l.* to 60*l.* per ton, and that after sinking a large amount of capital.

NICKEL MINING IN NEW CALEDONIA.

The PERCY AND KELLY NICKEL, COBALT, AND CHROME IRON MINING COMPANY, for developing the mines of the same name at Mont d'Or, Noumea, New Caledonia, has been brought forward with a direction of unusual strength, and under particularly favourable terms to intending investors. Mr. George Brockelbank, the Chairman of the General Steam Navigation Company, being the Chairman, whilst such names as those of Bishop Jenner, D.D., General Hicks, Director of the British Guardian Insurance Company, Mr. Edward Hausser, Engineer-in-chief, France, and Mr. John Morgan (of the well known colonial and continental firm of Higginson, Morgan, and Co.) appear as members of the board, of which there are eleven members. Each director will hold a qualification of 500*l.* in the company, and the vendors take the whole of their purchase money in deferred shares and debentures, running for 15 years, the principal and interest being payable *only out of profits*. We are informed that no promotion has been paid, the vendors bearing the whole of the expenses. The directors, as shrewd business men, have taken the very wise and sound precaution to stipulate that before the vendors receive any of their deferred shares or debentures, the property will be inspected and reported upon by an engineer selected and approved of by them. The bankers of the company are Messrs. Martin and Co., Lombard-street, and the offices are at 47, Charing Cross, S.W. The property is held under the Mining Statute Act of New Caledonia, the lease being in perpetuity from November, 1874, the only payment being a ground rental of 50*l.* per annum. The area included in the grant is 100 hectares (or 250 acres) in extent, and broad belts of lodes, all auriferous, traverse its entire length; large quantities of ore of excellent quality have been discovered on the surface, and Mr. Kelly, of Sydney, reports that about 150 tons, averaging about 10 per cent., is now stacked, and can be taken over, together with any ore on bank, by the company at 24*l.* per ton, being the lowest price offered by the Bank of New Caledonia at Paris for 5 per cent. ore, so that after paying the cost of getting the ore to the shipping port there would still remain a very large profit for the shareholders. The percentage of nickel contained in the ore appears to vary considerably, but never to go below 2¾ per cent., the poorest sample—a hard pimelite, giving 2·78 per cent. of nickel; one by Messrs. Johnson and Matthey gives 5 per cent. peroxide of nickel, and 0·75 per cent. of cobalt; another, an earthy pimelite, gives 15·63 per cent. of nickel; in a sample assayed by Dr. Leibus, of the Sydney Branch Royal Mint, 6·46 per cent. of nickel was found, whilst Prof. Liversidge, of Sydney University, found 24 per cent. of oxide of nickel in a sample which he assayed. A contract has been entered into between the company and the Parisian Bank of New Caledonia for the sale to the latter, for three years, of all products of the mine, f.o.b. at New Caledonia at the following prices—24*l.* for ore between 5 and 7½ per cent.; 32*l.* for 7½ to 10 per cent.; and 40*l.* for 10 per cent. ore; and there is little probability of this price declining, inasmuch as with regard to the present and prospective quotations of nickel, upon which, of course, the profits of all enterprises of this kind largely depend, Messrs. Henry Wiggin and Co., the successors of the well-known firm of Evans and Askin, of Birmingham, under date Oct. 8, write—"The high prices of nickel and German silver which have ruled during the last few years are mainly due to the large amount of nickel required by the German Government for their coinage. We think it right, therefore, to inform you that they have recently entered into a new contract for a considerable quantity of nickel to be supplied within the next 12 months, which will, in our opinion, tend to prevent any reduction in prices during that period." A contract upon these terms, offered by the Bank of New Caledonia, would be very unusual, but of unquestionable advantage to the company since the working of the low-class ore would give the company the largest profit, for 1 ton of nickel would be contained in 16⅔ of 6 per cent. ore, which at 24*l.* per ton would give the company 400*l.*, whilst the same quantity of nickel would be contained in 11 tons 2 cwts. of 9 per cent. ore, which at 32*l.* per ton would yield but 355*l.* 11s. The additional 44*l.*, however, obtained for the lower produce ore does not represent the whole additional advantage to be derived by the company, for less costly dressing machinery and less care in dressing would, of course, be necessary than when the object is to dress to the highest possible produce in order to save cost in freight. But even at 40*l.* per ton for 10 per cent. ore, an enormous profit might be realised, for it is mentioned that a contract was entered by Mr. Pratch with Messrs. Tully and Co., of the Mont d'Or Nickel Mine, which adjoins the Percy and Kelly, "to mine and deliver 3000 tons, at the rate of 150 tons per month, for 10,500*l.*" This is equivalent to 3*l.* 10s. per ton, which would leave a profit of 26*l.* 10s., so that assuming the Percy and Kelly to turn out but 150 tons of 10 per cent. ore per month, the profit would be 47,700*l.* per annum, representing a return of the entire subscribed capital in 2½ years and a few days. If the company could keep down the produce to 6 per cent. the profit would be proportionately increased, and the return made in a much shorter period.

Great facilities exist for the shipment of ore, for the Government Surveyor states that it can be conveyed from the mine by a tramway, 1800 yards long, on an incline to the water's edge, and the Government Surveyor for the Blackwood division, Ballarat district, Victoria, who has examined the property, remarks that he looks upon the situation of the property—on the western slope of the Grand Mont d'Or with a gentle slope to the Boulari river—as being next to the value of the mine of the greatest importance. He explains that in shipping ore from other mines the vessel will be exposed to strong south-westerly gales, whilst in their case they have a safe and secure anchorage in Boulari Bay against the prevailing storms. He states that on examining the property he found large nickel outcrops in different places, the largest of which he has indicated; he directs especial attention to a couple of the more prominent, remarking that one very good indication—and without which he has never seen any nickel mine of value—is the enormous outcrop of what is termed nickel stone which abounds in the claim, and covers a very large surface of ground; it seems that the reason this particular rock is termed nickel stone is that where it occurs the nickel ore is always found. The Boulari river, about 600 yards from the northern boundary of the claim, could be made available in the event of works being established. All the nickel appears to run into the mount, and the lodes can be followed by means of tunnelling in any part, the lowest outcrop being about 300 ft., and the summit of the mountain in the claim about 1500 ft. above the sea level. At a distance of about two miles from the property is the termination of the Noumea and St. Louis road, a Government road kept by prison labour in splendid order, and which is about being continued so as to pass, it is expected, close to the boundary. This will enable the company, when it may be deemed necessary to forward the ore direct by land to Noumea, the port being then brought within 12 miles.

The extraordinary mineral resources of the colony having attracted the attention of capitalists in Sydney, Melbourne, New Zealand, and London, a Special Correspondent of the *Sydney Morning Herald* was sent to visit it, and the report which he gave of it was particularly interesting. With regard to the particular property now under consideration, he stated that the Grand Mont d'Or Company (Higginson and party), and Percy and Kelly's Mine, are the only two mines actually at work, and with the exception of the Grand Mont d'Or Company, Percy and Kelly's, and the Canadian Company, no *bona fide* title really exists. The Grand Mont d'Or he can safely class No. 1, although some like Percy and Kelly's equally as well, especially on account of its mining and shipping facilities. The next claim (Percy and Kelly's) in work he visited on two occasions, first in conjunction with Mr. Longbottom, a mining engineer of long experience, from Victoria, and Mr. Browne, the manager of the Mont d'Or Company, both gentlemen having been called to lay out the works; and second, on a recent occasion, when he saw a large open cutting about 100 ft. long and 10 ft. wide made to meet the rich reef, a portion of which assayed near 22 per cent.; this claim consists of 100 hectares, or (say) 250 acres surveyed. The works are being carried on under the direction of Mr. Percy, nine men being at work. As far as position is concerned, this claim certainly has the advantage of all others, a good road being made by the convicts is fast towards completion. The present workings are not more than ten minutes' walk from the back of Mr. Percy's house, with a gentle slope; I should say that the workings are not more than 250 ft. above the sea level. A river runs at the bottom by which the ore can be conveyed by punt to the mouth, thence by cutter to Noumea, a distance of about nine miles. This mine is the nearest one to Mont d'Or and to Noumea, either by land or water. He saw on this claim large quantities of surface nickel, and on the top of the mountain huge deposits of chrome iron. In the cutting to the reef enormous boulders of nickel ore have been met with, some of which had to be left standing, showing good nickel. He estimated the quantity stacked about 10 tons—say, about 6 or 7 per cent. ore. Mr. Percy intends, when he cuts the reef at present visible—say, 20 ft. from the cutting—to drive on the reef, and get out a large quantity of good ore for shipment to Belgium. He was forcibly struck while on this claim with the fine body of Lifu men at work, some of them of Herculean models. The manager seemed well pleased with them, and he was rather astonished at the handy manner they worked the pick and shovel. He considers, without making any invidious comparisons, this claim ranks No. 2. He understands it is the intention of the owners to introduce capital necessary to erect nickel works on the ground, and for that purpose the mine has been placed on the London market.

There can be no question that the great want for turning the nickel deposits of New Caledonia to commercial advantage is the erection of suitable reduction works, for the fact of the ore occurring as a hydrous silicate, and being free from arsenic, will ensure a ready market for the manufactured metal. The dressed ore appears to average about 15 per cent., and as the French Government have offered great encouragement for developing the mine by demanding as royalty only 2 per cent. on the pure metal obtained, or upon ascertained value of the ore raised, there is certainly a good field for enterprise. Chrome ore has also been found in large quantities encased in the nickel ore, an assay by Prof. Liversidge showing the chrome iron to contain 46·80 per cent. of chromium sesquioxide=32·11 per cent. of metallic chromium. There is a sufficiency of native labour available, and provisional arragements have already been entered into for the erection of the nickel works, so that it is fairly anticipated that the concern will speedily take a prominent and prosperous position among the mining undertakings on the London market.

FOREIGN MINING AND METALLURGY.

Prices in the Belgian coal trade show firmness, and deliveries have been well sustained. A preference has been more than ever given, however, to coal for domestic purposes. It appears that during the first nine months of the current year 494,000 tons of coal were imported into Belgium; in the corresponding period of 1874 the imports were 286,000 tons; and in the corresponding period of 1873, 465,000 tons. The exports of coal and coke from Belgium in the first nine months of this year were 3,000,000 tons, against 2,800,000 tons in the corresponding period of 1874, and 3,200,000 tons in the corresponding period of 1873. The imports of coal into Belgium from the Zollverein in the first nine months of this year were 126,000 tons, against 36,000 tons in the corresponding period of 1874; and from England 221,000 tons, against 146,000 tons in the corresponding period of 1874. Foreign coal exhibits a stronger and stronger tendency to invade the Belgian markets—a tendency which Belgian coalowners can only check by concessions in the important matter of prices. The failure of Dr. Strousberg, which is attributed to the non-success of sundry speculations in coal and metallurgical products, will probably increase German competition for a time. The imports of coke into Belgium during the first nine months of this year were 12,000 tons, against 5000 tons in the corresponding period of 1874, and 21,000 tons in the corresponding period of 1873; the exports of coke from Belgium in the first nine months of this year were 498,000 tons, against 377,000 tons in the corresponding period of 1874, and 650,000 tons in the corresponding period of 1873.

According to an official communication to the Royal Mines Office in Breslau the measures concerted between the Westphalian pit-owners and the railway companies concerned for creating an export trade by sea for Westphalian coal are to be imitated on behalf of Upper Silesian coal. The Baltic ports, Russia, Poland, and Austria are the markets to which attention is to be specially directed, and the object in view is to be attained, it is expected, partly by means of a reduction of the tariffs on the railways whose services will be required.

In the French iron trade the precarious state of affairs has become somewhat aggravated. Prices have not fallen in the case of small orders, because the profits are too small to admit of a reduction, and it is deemed better to refuse business rather than to work at a loss, but the depreciation observable in the prices obtained in large transactions is serious. The Terrenoire Works, for instance, sent in a tender the other day for iron rails at 6*l.* 12s. per ton; Terrenoire has also offered to deliver steel rails at Leghorn at 9*l.* 12s. per ton. There has been no change in the price of pig, but a slight fall has occurred in iron in the South of France. An exhibition of electric apparatus is proposed to be held in the Palace of Industry at Paris from July 1 to Oct. 1, 1877. Steam traction for tramways continues to be a prominent problem of the day; an engine, manufantured by the Metallurgical Company, and which has been just tried at Brussels, is stated to have yielded highly satisfactory results.

The Rotterdam tin market has remained extremely quiet, and affairs are almost *nil*. Holders have thus far exhibited a certain amount of firmness, but a disposition to realise has begun to show itself. Banca has made 52 fls., while Billiton has been obtainable at 50 fls. to 50½ fls. The stock of Banca tin and schedules in Holland at the close of October was 20,297 blocks, as compared with 14,398 blocks at the close of October, 1874, 22,982 blocks at the close of October, 1873, 45,112 blocks at the close of October, 1872, and 90,917 blocks at the close of October, 1871. The unsold stock of the Dutch Society of Commerce stood at the close of October at 72,821 blocks, as compared with 126,751 blocks at the close of October, 1874, 136,611 blocks at the close of October, 1873, 32,725 blocks at the close of October, 1872, and 21,943 blocks at the close of October, 1871. Copper has maintained its price pretty well, thanks to the moderate deliveries which have been made. At Paris, Chilian in bars has made 87*l.*; ditto, ordinary descriptions, 85*l.*; ditto, in ingots, 89*l.*; English tough cake, 89*l.*; and pure Corocoro minerals, 86*l.* per ton. Quotations for zinc have become a little stronger; stocks have been reduced, and a large proportion of the current fabrication has been taken firm. Lead prices have been adversely affected by a considerable falling off in the demand,

There has been scarcely any variation in French coal quotations, under these circumstances partizans of the *status quo* can alone be satisfied. It is a long time since such a persistent indecision has been seen in the coal trade at this period of the year. In spite of all statements to the contrary, it must be admitted that deliveries are not very active, that the railways are not blocked up with coal traffic, and that freights have not advanced.

The attendance at the last metallurgical bourse at Brussels has been smaller than usual, and transactions have languished in consequence. The great Belgian rail mills appear, however, to be reviving a little from the depression which has weighed upon them. The Cockerill Company, for instance, has concluded an important contract for steel rails for the Belgian State railways, and it has also undertaken to make a large delivery of rails and some locomotives for Spain. The Thy-le-Chateau Company has also obtained orders for 6000 tons of rails for Italy and Holland. This must be pronounced favourable intelligence, as such orders as these will assure the workmen of the companies in question employment during the rigorous months of winter. Merchants' iron, pig, and plates have remained *in statu quo* upon the Belgian markets, prices having scarcely varied. The efforts of Belgian industrials are at present almost entirely confined to the European continent; some of them are beginning to enquire whether they cannot find an outlet for their products in China. They argue that there is a colossal commercial movement

in the interior of China, and that those who first undertook the construction of railways in China would practically monopolise the Chinese railway future. A congress of industrials has just been held at Berlin. The principal question on the orders of the day was the abolition which is proposed in Germany of the import duties now imposed on iron and steel, and which is to take place as from Jan. 1, 1877.

A service of haulage by horses has been organised on the rivers and canals which put Paris in communication with Belgium and the North of France. The service will be continued even during the night. The service will be obligatory for most descriptions of boats plying on the canals, but it will be permissive as regards empty boats.

THE THERMO-ELECTRIC GENERATOR.

Considerable attention was directed some seven years since to an invention for generating electricity by heat, and although, as is usual with all new processes and apparatus, it was found in applying it practically that certain modifications of details were necessary, enough was done to show that the invention was worthy of development, and Mr. CHARLES CLAMOND, of Paris, has since succeeded in rendering it as near as may be perfect, thus solving the long-open problem of producing cheap electricity on a large scale. The principle involved in the original invention remains unchanged, but important alterations have been made in the construction of the bars and the method of applying the heat. The difficulties with regard to thermo-electric piles were at first very great, arising chiefly from the thermo-electric bars only retaining their power for a short time. Under the continued action of the heat, and the alternate successive heating and cooling to which the bars are subjected they acquire an interior resistance, which goes on increasing, (although the electric force is the same), and which eventually becomes such that the current engendered by the heat no longer gives more than a very feeble and inappreciable quantity of electricity. Sometimes there is even a complete cessation of the continuity, which renders the electric performance unreliable, perhaps at the moment when it is most required. After careful investigation Mr. Clamond discovered that this defect was mainly owing to two causes—firstly, the surface of the metallic plate by contact with the metal or crystallised mineral oxidised and became a resistant to the passage; and, secondly, the crystallised bar, whether metallic or not, became split or cracked These cracks, imperceptible to the naked eye, grew larger, and the oxidation penetrated to the interior of the bar, which became more and more resistant, which unfavourable circumstance rapidly rendered the pile useless.

By a special method of fastening or sealing the metallic plate in the part of the bar exposed to the heat, combined with a peculiar method of casting the bars in hot moulds, Mr. Clamond succeeds in getting rid of the difficulties. When the thermo-electric pile is to be constructed he sometimes places all the bars in line, but generally he adopts the circular arrangement. A given number of elements are superposed and isolated one from another by mica or amianthus, forming by their superposition a cylinder, the interior of which has to be heated. A fire-clay tube, with perforations upon its circumference at intervals to form a kind of lengthened cap, is placed within the pile, an air space, open at the top, being left between the tube and the bars. The whole is heated with a Bunsen burner, ordinary coal gas supplied through a regulator being the fuel used. The mixture of the gas and air takes place in the refractory cap, and comes away at different heights through the orifices which lead into the annular space, where it is burnt in contact with the hot air coming from below, the previous heating of the air rendering the combustion very complete. The bars are also heated at the same time by the radiation of the fire-clay tube, which remains at a red heat, and by the contact of the flame and the products of combustion rising towards the chimney. Each bar is furnished with pole-plates for taking up or receiving the electric current. The method of uniting the plates to the electrode depends upon whether it is desired to develope a tension or a quantity current, and also upon the tension and upon the quantity of it. One of the plates may be sealed flatwise, as usual, to the cold end of the bar, the other being in contact with a bar in the interior or hot part.

In the moulding operation the metallic plate first placed in the moulds is provided with a little appendage, which, while the metal is flowing through or into the mould, will be sealed or fastened to the material of which the bar is composed. This appendage is a metallic ring soldered to the plate and formed in a plate somewhat narrower than the plate, or else it is taken even into a part of the plate, which is hollowed for the purpose, another portion being thrown back again and beaten down to double its thickness. The width of the ring should be smaller by about half than that of the plate, these plates, scraped or tinned, being placed in the mould and conveniently arranged. The metal or mineral envelopes or surrounds the ring, which penetrates to the interior, constituting thus a core which forms one with the mass of the bar, and which ensures an intimate and permanent contact between the plate and the bar. The material preferred for the bars is an alloy consisting of about two parts antimony with one part zinc.

With regard to the efficient working of a thermo-electric pile, Mr. Clamond maintains that whatever be the substance employed, so long as it is cast in cold moulds it is impossible to prevent it cracking interiorly; that is due to the homogeneity of the crystalline covering, and in consequence of the inequality of the dilitation, which occasions the ruptures and crackings which take place in the bar. On contact with the cold sides or walls of the mould the exterior coating of the melted metal or mineral hardens quickly, and undergoes a kind of hardening which contracts it, while the interior of the bar is still liquid, and is congealed very slowly. It follows, as a natural consequence, that the crystallisation is not uniform and regular. Mr. Clamond claims that his method entirely avoids these inconveniences; it consists in previously heating the moulds to a degree very near to the point of fusion of the metal or mineral. These latter, melted to a liquid in the crucible, are poured into the heated moulds, which are placed afterwards in a middle course, where they are allowed to cool slowly. He thus obtains bars which are perfectly homogeneous, and in consequence do not crack or split. For ensuring the proper arrangement of the elements of the pile he supports them between two ring-plates. These ring-plates are bound firmly to the central discs by arms traversed at their extremities by button-rods serving for cross bars. The inferior or lower plate is cast in a piece with the foot supports.

It will readily be understood that gas may not be at all times available for producing heat, but as Mr. Clamond has arranged for the use of coke, in that case the system would seem to be generally applicable. When he heats by coke for generating thermo-electricity the coke is enclosed in a cylindrical column of iron concentric to the pile, and of a diameter narrower than the interior diameter in order to reserve an annular space between the two for the radiation of the heat. The coke rests upon a fixed or moveable bar, which admits of the necessary air for the combustion, the products escaping by a lateral conduit to the chimney. The products can, however, be made to circulate in the space before passing away. To maintain the current continuously the coke (or where the pile is very small, charcoal) is charged at the top, and the residue can be removed by lowering the bars, which, by preference, are jointed.

The invention has already been fairly tested in this country, and the value and economy of the pile for telegraphic purposes have been placed beyond question by the result of many months' working at the Exchange Telegraph Company's office, in Bartholomew House. The THERMO-ELECTRIC GENERATOR COMPANY now propose to introduce it more generally, and as it is equally applicable to electro-plating and electrotyping, production of light—and, indeed, to all the various purposes for which batteries are commonly employed—there would appear to be a large field for business. At the recent meeting of the Société d'Encouragement pour l'Industrie Nationale the large gold medal was awarded to Mr. Clamond in recognition and appreciation of the value of his important discovery, and there can be no question that the honour was well deserved. The economy in maintenance is found to be very considerable in comparison with other batteries, and the current obtained is constant and free from polarisation and exhaustion. By way of illustration of the efficiency of the pile, it may be stated that when employed for the deposition of metals it was found that a machine of 100 bars, with a consumption of 8 to 9 cubic feet of gas, would deposit about 1 oz. of silver per hour. The same apparatus, coupled for quantity, deposited about the same quantity of copper in a similar time. Another apparatus, with 400 bars, large, consuming 2 lbs. of coke per hour, will deposit about four times those quantities. The invention altogether appears to be a highly valuable one, and the progress made in introducing it will be watched with much interest.

MINING IN CORNWALL.

[The following paper was read by Mr. JAMES WILLIAMS at the meeting of the Royal Cornwall Geological Society at Penzance.]

OUR MINERAL LODES.—Here is a wide field for observation, and open to all comers; and when we consider its importance to the county not a few will be surprised at the manner in which they have been neglected, and you will agree with me when I state that every business, or branch of business, is watched with the greatest jealousy, to find, if possible, its valuable and paying points, so that we might increase their value. At the present time we are passing through a period of great depression from the dulness of mining, which has been felt by all parties. Is it not the duty of all to assist towards the removal of the depression existing? and this must be my excuse for trespassing on the society at the present time, which I hope will be considered a sufficient one.

The most feasible mode of procedure that I can recommend towards removing the evil would be to point to and make plain to capitalists the whereabouts of our mineral deposits, as they are no doubt disgusted with foreign bonds, and will be prepared to invest in our Cornish mines; but many, probably, would presume to state that the mineral wealth of our county is exhausted. I will admit that there have been vast quantities of mineral returned by us, and many large fortunes made thereby, but I will venture to affirm there is a far greater amount of mineral wealth yet to be unearthed than that which has been already made marketable. Observation has been the means of great good already in the county, and a few parties ascribe their success in a great measure to it. I contend if we can define the junctions of our lodes, and confine our operations to those points (or as near as possible), hundreds if not thousands of fathoms of unproductive ground that is being broken annually would not be meddled with, and if we can point out the non-productive ground, we can also point to the productive (with few exceptions), and scores of junctions of profitable ground may be readily opened up, and our county thus become more profitable than it has ever been.

The following will go to prove my last remarks:—In about the year 1858 I commenced collecting facts, and at the same time disseminating them. Soon after I was informed that in a certain mine they had met with a capital course of copper; on visiting the mine I was taken to the counting-house, and a table pointed out to me covered with rich specimens of copper. On my asking what made the alteration and improvement, the reply was the junction of the caunter with the east and west lode, which they were not likely to have meddled with but for my remarks. Very recently a mine was opened not far from Camborne. After working some time the agents were recommended to drive towards the junction, and after about 12 fms. driving the junction of the caunter with the east and west lode was met with, and a good deposit of mineral. Since that fortunate event many reports in favour of the mine have appeared in the various papers, and stated by many as having been found by Williams's plan of working.

Contrast the foregoing with the following old plan of inspection and reporting. I was present when 2*l.* was paid for an unfavourable report of an inspection, the ground being condemned by the agent inspecting; about 15 years after the sett condemned was at work, and within 30 fms. from surface a course of tin was met with worth more than 80*l.* per fathom.

I propose to obtain the testimony of our mineral lodes from the Land's End to the Tamar, in districts, with a map to accompany each, containing the known lodes, guides, cross-courses, caunters, elvan courses, junction of two strata of ground—and, in fact, all secondary elements, for which work I desire the hearty co-operation of all classes who have the well-being of Cornish mining at heart.

DIRECT ACTING WINDING ENGINES FOR MINES.

At a recent meeting of the Institution of Mechanical Engineers an interesting paper upon this subject was read by Mr. GEORGE H. DAGLISH, of St. Helens, in which he referred to the principal types of direct acting winding engines at present in work in the different coal mining districts, and remarked that the consumption of fuel seems not to have been taken account of in colliery engines, as he had never yet been able to arrive at the quantity of coal consumed by a colliery winding engine, the general excuse being that the coal used at collieries was unfit for sale, and that, therefore, it did not matter what quantity was burned. He remarks that the condensing engine has very seldom been applied to the winding of coal; but, with the greatly extended scale of mining operations at the present day, it is worth consideration whether the more general adoption of the condensing principle would not be beneficial where a sufficient supply of pure water can be obtained. Where this is the case the existing high pressure winding engines should, he considers, have a separate condensing apparatus attached, with air pumps, worked by a donkey engine, independent of the main engines, and under the control of the engineman, who would thus be able at all times to have the vacuum available for immediate use. He described the several systems of counterbalancing by conical drums, levers, and chains. The spiral or conical drum he believes was first introduced and adopted in Wales. In the Wigan district the first conical drum was started and set to work some 14 years ago, and worked until 1872, when, in consequence of an accident with a winding drum at another pit, belonging to the same proprietors, this conical drum was altered, and a flat drum substituted for it. The pendulum, lever, and incline plane principles of counterbalance were also explained. The system of counterbalance in general use in the northern collieries is the chain counterbalance, consisting of a long bunch of chain, which at the commencement of winding hangs suspended in the top of a staple, or shallow pit. The winding drum makes 24 revolutions at each winding. At the end of the third revolution the bunch of chain touches the bottom of the staple. At the end of the sixth revolution the whole of the bunch lies at the bottom of the staple. At the meeting point where the ascending and descending cages pass each other in the shaft the whole of the large suspending chain, as well as the bunch, lies at the bottom of the staple. During the latter half of the winding the converse takes place, the chain being drawn up out of the staple, and thereby producing a gradually increasing retardation upon the engine.

In an interesting discussion which followed the reading of the paper the value of the back piston rod in horizontal steam cylinders was considered. Mr. Jeremiah Head thought them worse than useless. If the backslide be packed up sufficiently to carry any part of the weight of the piston the rod is inevitably sprung upwards out of line, and the effect of the tail piston rod is to work an oval in the back stuffing box. Mr. Reynolds agreed in considering it undesirable to have the piston rod prolonged through the back end of the cylinder in a horizontal engine, though this was found necessary in many modern foreign locomotives, probably owing to the use of wrought-iron or steel pistons, which being proportioned with reference only to the theoretical requirements of strength had very narrow bearing surfaces, and, therefore, cut the cylinders. The simple remedy for wear of the piston was to have plenty of bearing surface, which would remove all necessity for back rods, except where steam jackets or superheated steam were used: in these cases back rods, or very strong single piston rods, had sometimes been found necessary to resist the jarring action arising from the dryness of the sides of the cylinder. He pointed out that with the modern fashion of making winding-engines excessively large in order to start quickly involves undue strain on the ropes. Mr. B. Walker considered the great weight of the drum in modern winding-engines, which caused it to act as a large fly-wheel, was a decided advantage, and in conjunction with the long stroke adopted, must prove an important source of economy in the working of the engines. Mr. H. Davey enquired to what extent expansive working was now carried in winding-engines. This was one of the most important subjects connected with winding-engines, and one that had occupied the attention of engineers for many years, but he was not aware that any great success had yet been attained in that direction.

With reference to the small use of condensing-engines for colliery winding, Mr. H. Lawrence mentioned that in the county of Durham there were many condensing-engines in use for that purpose, which were working in a most efficient manner. Mr. W. S. Hall observed, with regard to the size of the pithead pulleys and the wear of the ropes, that if the pulley were made too large in diameter it acted as a fly-wheel, and would then overrun the rope in stopping or starting quickly, and wear a flat place in the rope at that part. Mr. T. Claridge had overcome the difficulty of unequal expansion in double-beat valves by making the valve itself of cast-iron as well as the nozzle. It was simply necessary, he said, to make the valve of good tough iron, with a little greater thickness of metal than in gunmetal valves, and when so made they were stronger than gunmetal valves, and would wear very much longer; he had known them work for 25 years. The cast-iron valves were cheaper, not only in first-cost but also in total expense. Mr. W. J. L. Watkin mentioned that at the Pemberton Colliery, with regard to the wear and tear of the ropes, he attributed their long duration to the careful manner in which the grooves on the winding drum had been prepared by Mr. Daglish. There was not the slightest grating of the ropes in the grooves during the whole course of the winding, and there was scarcely any trade whatever. The ropes, which were made by Messrs. Haggie, of Gateshead, had now been at work since Sept., 1871, and he could not yet find the slightest defect in them. In reply to the President, he further stated that the rope which passed under the winding-drum used generally to wear out three months sooner on that account than the one which passed over it. The velocity of the cage in the pit at the point of greatest speed is 57 to 58 miles per hour in regular working. The engineman shuts off the steam and begins to reverse the engine about seven revolutions before stopping, the ascending cage being then 180 to 200 yards from the top, and the steam has to be admitted against the engine in the last two or three revolutions. Up to the time of shutting off steam the engine is running at its full speed. The President remarked that no allusion had been made in the paper to the means taken for preventing over-winding, and expressed the hope that that might be done on a subsequent occasion.

MECHANICAL VENTILATION OF MINES.

At the recent meeting in Manchester of the Institute of Mechanical Engineers an interesting paper on the "Mechanical Ventilation of Mines" was read by Mr. WILLIAM DANIEL, of Leeds, the object being to show that circumstances were entirely changed since the late Mr. T. J. Taylor demonstrated that, as compared with the mechanical appliances then in use, it was for valid reasons the best and safest system of ventilation. Mr. Daniel maintains that, notwithstanding its admitted simplicity, the rarefaction of the outgoing air by heat to produce the ventilating current has proved troublesome, expensive, and dangerous. Under these circumstances it is not surprising that since the subject of mechanical ventilation was brought before the Institution, at a meeting six years ago, the adoption of the greatly improved mechanical appliances then described for the ventilation of mines should have been so extensive that in this country there are at present about 250 mechanical ventilators in actual use, or in course of construction, of which 180 are the Guibal fans, and about 60 are the Waddle fans. In the matter of fuel consumption the best existing appliances would be about on an equality with furnaces, when the latter were employed at a depth of about 700 yards; and the less the depth the greater the economy of the machine became. But for the reasons already adduced, it might certainly be asserted that the furnaces ought never to be employed except in small mines, where the duration of working and physical conditions were such as not to justify the additional outlay required for a fan. Most, if not all, of the mechanical ventilators now in use exhausted from the top of the up-cast shaft in the case of pits, or at the end of the return air-course where they were employed for day-working; and they might be divided into two classes—namely, those in which a continuous current is maintained by centrifugal action, as in the fans of Guibal, Rammell, Waddle, and others; and those which intermittently discharge a certain quantity, to which class belongs the species of rotary pumps of Lemielle and Cooke, the piston-machine of Nixon, and the reciprocating air-chambers of Struvé. Mr. Daniel then proceeded to describe the ventilator invented by Mr. Cooke.

The ventilator consists of two circular casings placed side by side, in which revolve eccentric circular drums; two swinging shutters suspended at and oscillating about the shaft receive motion from the crank, lever, and connecting-rod, so as to be always close to, but not in absolute contact with, the eccentric drum; one shutter seals the outlet during the discharge of the air from the drift leading from the mine. The eccentricity of the drums is about one-fourth of their diameter; the drums are about two-thirds of the diameter of the casing, and the width of both casings and drums is about one-half the diameter of the casing. The throw of the crank is the same as the eccentricity of the drum, the centre of the crank-pin coinciding with the centre line of the drum. The connecting-rod and lever are both of the same length as the radius of the casing, and the bottom of the shutter is curved to a radius of the same length as the crank and the eccentricity of the drums, the curve being circular, and described from the same centre as the lower end of the lever.

The only two ventilators on Cooke's plan that are at present working have been erected at the Upleatham and Lofthouse Ironstone Mines of Messrs. J. W. Pease and Co., and their construction and capacity, with experimental results taken from the pits where they are in operation, were fully described by Mr. Daniel. At Lofthouse the degree of useful effect was measured at 64 per cent., and at Upleatham at 61 per cent. The consumption of fuel in most cases could not be accurately ascertained; for, according to the usual practice, steam was taken from boilers used for other purposes than that of ventilation. But the writer wishes to direct attention to the fact that in the majority of ventilators now working low pressures, very little expansion, and consequently wasteful types of engines, are usually employed, where, owing to almost constant work, a more economical type of engine might be advantageously adopted.

TREATING PEAT.—Some improvements in machinery and apparatus for kneading, cutting, condensing, drying, carbonising, and disintegrating or pulverising peat and other matters have been patented by Messrs. C. E. HALL, of Leeds, and C. E. BAINBRIDGE, of Middleton, in Teesdale. The invention consists of an improved machine for kneading or masticating and cutting and condensing raw peat, and for cutting it into blocks. The said machine consists of a taper casing having feed and delivery openings, in which casing is a diaphragm having ports or openings; cutters, archimedean screws, and pug arms are mounted on revolving shafts in the said casing; on the pug shaft a disc is mounted for facilitating the delivery of the peat, which is cut by means of a counterbalanced cutter as it issues from the casing. In some cases the pug arms may be fixed in the casing. The disc may be dispensed, and reciprocatory cutters may be used. The shafts aforesaid are caused to revolve at different speeds by means of gearing of the kind described in the Specification of Letters Patent, No. 1667, A.D. 1870. The invention further relates to such peat cutting machines as have stationary cutters between which revolving cutters work, the improvements in the said machines consisting of apparatus for clearing the said stationary cutters from the fibres which accumulate on them. The invention further consist of improved apparatus for drying and carbonising peat and other matters. The said apparatus consists of horizontal chambers heated by a suitable furnace, the volatile products of combustion from which furnace, as well as the air heated thereby, are passed into and through such chambers. The invention further consists of improvements in apparatus for carbonising peat, wood, bones, and other matters. The said apparatus is similar in principle to the drying and carbonising apparatus hereinbefore described, the chief difference being in the arrangements of the chambers and of the flues for conducting hot-air to them. The invention further consists of improvements of disintegrators or machines in which matters are reduced by being struck by beaters revolving in a casing, the interior of which is provided with teeth. According to this invention a wheel provided with cutters is fixed on the shaft of the machine, and an opening is formed in the casing, which is furnished with a steel blade. The teeth on the interior of the casings are of the shape of a triangular pyramid. The exit

aperture is provided with an adjustable grating. The improved machine for pounding consists of a casing provided with teeth of the kind hereinbefore described, at one side of which casing a hopper is formed. A revolving shaft passes through the said casing, on which shaft are mounted a truncated cone (on which are formed cutting edges) and beaters, the said cone revolving within the hopper and beaters within the casing.

MORVAH CONSOLS TIN MINING COMPANY (LIMITED).

COURT OF APPEAL, LINCOLN'S INN, NOV. 5.

(Before Lords Justices JAMES and MELLISH and Mr. Justice BRETT.)

This was an appeal from a decision of the Vice-Warden of the Stannaries Court. The company was registered under the Companies Acts on Nov. 7, 1871, with a nominal capital of 15,000*l.*, divided into 3000 shares of 5*l.* each, its object being to purchase and work the Morvah Consols Mine, in Cornwall, a lease of which for 21 years had, in June, 1871, been granted to a Mr. James Hammon. Mr. C. M. Fisher was one of the subscribers of the Memorandum of Association, and Mr. G. S. M'Kay was another. The Articles of Association provided that a certain agreement, set out in the appendix thereto, should be confirmed and adopted, and declared to be binding on the company. The agreement referred to was one between Hammon of the one part, and M'Kay, on behalf of the Morvah Company, then intended to be formed, of the other part, by which it was agreed that Hammon should sell, and the company should purchase, the lease of the mine for 6000*l.* to be paid, as to 3000*l.*, in cash; and as to the other 3000*l.*, by the issue to the vendor or his nominees of 600 fully paid up shares of 5*l* each in the company. The agreement was duly registered with the Registrar of Joint-Stock Companies. The agreement was afterwards modified in this way that Hammon was to receive only 1000*l.* in cash and 5000*l.* in fully paid up shares. There was a secret arrangement between Hammon and M'Kay thatthe latter was to have 600 of the fully paid up shares transferred to him, as a remuneration for his services in getting the agreement entered into between Hammon and the company. Of this agreement between Hammon and M'Kay the directors of the company knew nothing. M'Kay said that in this transaction he was acting on behalf of Fisher, who was the person really entitled to the benefit of it. M'Kay was the secretary of the company from its registration in November, 1871, until March 8, 1872, when he went away to America. On March 5, 1872, at a meeting of the directors, at which M'Kay was present as secretary, 1000 shares were allotted as fully paid up to Hammon, and of these, 600 were, on April 12, 1872, transferred to M'Kay for a nominal consideration. He had executed the transfer in blank before he left England. In December, 1872, he returned to England, and in December, 1874, he was appointed a director of the company. In February, 1875, the company, which had proved unsuccessful, was ordered to be wound up. Before this time, M'Kay had transferred 100 of ths shares to to Col. Trevenan J. Holland, the managing director of the company. Under these circumstances the Vice-Warden, on the application of the liquidator, made an order that M'Kay should pay to the liquidator 2500*l.*, being the amount he was liable or accountable to contribute to the assets of the company in respect of 500 shares in the company. The order professed to be made under Sec. 165 of the Companies Act, 1862, which provides that "where, in the course of the winding-up of any company, it appears that any officer of such company has misapplied or retained in his own hands, or become liable or accountable for any moneys of the company, or been guilty of any misfeasance or breach of trust in relation to the company, the Court may examine into the conduct of such officer, and compel him to repay any moneys so misapplied or retained, or for which he has become liable or accountable, together with interest, or to contribute such sums of money to the assets of the company by way of compensation in respect of such misapplication, reticence, misfeasance, or breach of trust, as the Court thinks just." M'Kay appealed from the order.

Mr. INCE, Q.C., and Mr LANGWORTHY, in support of the appeal, argued that if M,Kay was to be treated as a trustee for the company he could be charged only with the profit which he had actually made from the transaction, which profit in this case was nothing; that Sec. 165 did not apply, because M'Kay was not an officer of the Company when the shares were transferred to him; and that, if it did not apply, yet in estimating the amount of damages the Court ought to take into account the fact that the persons who might otherwise have had these shares might have been insolvent, as indeed many of the holders of shares in the company had proved to be. The appellant ought, therefore, not to be charged with the full amount of the shares.

Mr. Marten, Q.C., and Mr. Northmore Lawrence appeared for the liquidator, but were not heard.

Lord Justice MELLISH was of opinion that the decision of the Vice-Warden was perfectly correct. The principle to be applied to the case was plain enough. M'Kay was the secretary of the company, and also the person employed on their behalf (whether he was or was not agent for Fisher appeared to be wholly immaterial) to enter into negociations with Hammon for the sale of the mining property to the company. An agreement for the sale of the property to the company was entered into between Hammon and M'Kay on behalf of the company. There was a sub-agreement, whether contemporaneously with or after the agreement for the sale of the property was immaterial, that M'Kay or Fisher should receive from Hammond 600 of the fully paid-up shares, and unquestionably there was never any consideration for the transfer of those 600 shares from Hammond to M'Kay beyond the benefit which Hammond had derived from M'Kay or Fisher while they were acting as agents of the company in the transaction. Whether it was a matter of bargain or a present made by Hammond, it was in consideration of a benefit which he received from the company's agents. Now, in this Court it was quite clear that all the benefit which the agent of the purchaser in such a transaction received from the vendor would be treated as belonging to the purchaser. It was so laid down in "Sir John Hay's case" and many others. All the remuneration which an agent so received he received on behalf of his principal. It was, therefore, clear that all the shares transferred by Hammon to M'Kay, for which there was no other consideration than the benefit which Hammond derived from him in the course of his agency, belonged to the company. Either those shares should have had no existence at all, or M'Kay held them only as trustee for the company. That was the substance of the transaction, and in the view of this Court M'Kay was liable for the 500 shares. Then arose the question whether the value of the shares could be recovered by a proceeding under section 165. His Lordship agreed that it was necessary that the person summoned should have been an officer of the company at the time when the wrongful act complained of was committed. But here M'Kay was an officer of the company when the act was committed or at any rate at the time when it was begun to be committed. He, as secretary, knowing all the facts, allowed the directors of the company to allot these shares to Hammon without telling them that in truth the shares were the property of the company. It was immaterial that the actual transfer of the shares to himself did not take place till after he had ceased to be secretary; therefore, his Lordship was of opinion that the proceeding was rightly taken under section 165, and that it was not necessary to file a Bill. Then came the question, what was the proper amount of damages to be paid? His Lordship did not quite agree with the Vice-Warden that, because M'Kay was not entitled to have the shares as fully paid-up shares, therefore he was to be treated as a holder of ordinary shares. His Lordship thought he was only liable to account for the fair value of the shares. But Mr. M'Kay was a wrong-doer, and, therefore, in estimating the damage a presumption might be made against him which could not be made against a person who was not a wrong-doer. The directors were at this time allotting the shares, and it was their duty to see that the shares were taken by solvent persons, and it was impossible as against a wrong doer to assume that the persons who might otherwise have taken these shares would have been insolvent. It must be assumed that these shares would otherwise have been allotted to solvent persons; and those of the shareholders who were solvent had been compelled to pay up the full amount of their shares; therefore, his Lordship thought that the amount of damages had been properly fixed, and that the order was quite right. The appeal must be dismissed, with costs.

Mr. Justice BRETT was not quite sure that he agreed with all the reasons given by the Vice-Warden in his judgment; but still he thought it quite clear that the decision itself was that which the Court ought to give in this case. At a time when M'Kay was not an officer of the company he entered into the agreement for purchase on behalf of the company. By this agreement it was made to appear that a certain number of fully paid up shares in the company were to be given to Hammon as part of the purchase-money. But there was a concealed agreement between M'Kay and Hammon that 600 of these fully paid up shares were not to go to Hammon, but to Fisher or M'Kay as remuneration for their trouble in the transaction. The company were induced to believe that Hammon was receiving from them a particular sum, whereas, in truth, Hammon was only to receive a part of that purchase-money, and the company, without their knowledge, were being made to pay 600 shares, part of the purchase money, to M'Kay, who was affecting to act on behalf of the company while he was in reality deceiving them. There was not much difficulty in saying that this was a fraud on the part of M'Kay and Fisher, but at any rate it was a misfeasance. This was done at a time when M'Kay was not an officer of the company; but then he committed another misfeasance by assisting, after he became secretary, to carry out the wrongful agreement which he had previously entered into. He had been guilty of a misfeasance while he was an officer of the company, and this Court had jurisdiction under section 165 to order him to pay a sum of money in respect of that misfeasance. Then, what was the proper amount for him to pay? Where there had been a breach of trust or a misfeasance, there was no fixed legal rule to determine the amount of the damages, but the damages were at large. Of course he could not be ordered to pay any damages which were not consequent on the act, but he could be ordered to pay the largest amount of damages which might have resulted from the wrongful act, and it might be assumed that a solvent purchaser could have been found for these shares if M'Kay had not had them. If a clerk in an office chose to allow himself to be made a tool of his employer to carry out such a transaction as this the Court ought to compel him to pay the largest possible amount of damages.

Lord Justice JAMES quite agreed with the judgments of both of his learned brothers. He only wished to add that, while their Lordships did not at present express their concurrence with the view of the Vice-Warden that the shares should be treated as unpaid shares, they did not intend to express their dissent from that view, inasmuch as it might be a question of importance in other cases in which the holder of shares transferred in this way was not an officer of the company.

MINING ON THE PACIFIC COAST.—The precious metal production of the West for 1875 will closely approach $100,000,000, against $73,000,000 for last year. The most of this gain will be in Nevada, but Arizona, New Mexico, Colorado, and Utah will aid considerably in the advance. A new district in southwestern Colorado named California district, and of which an embryo town—Parrott City—is the centre, is attracting considerable attention. The ores are both of silver and gold, besides which very extensive deposits of copper have been found. Mr. J. S. Phillips, well known as the author of "The Metallurgy of Gold and Silver," has lately been examining the mines in the interests, it is reported, of an English company. If his report is favourable the district may receive the advantage of a large investment from this source. Utah aimed this year to produce $12,000,000 worth of metals, including gold, silver, lead, and copper. Its production during 1874 was between $5,000,000 and $6,000,000, and at the close of the year the state of the business was such that most reasonable hope could be entertained of a large increase. The metal yield for 1875, as nearly as can be estimated, will be about 10 per cent. higher than for 1874.—*Mining Review*, Colorado, Oct. 18.

MINING IN NEVADA—THE CONSOLIDATED VIRGINIA.

The Consolidated Virginia Mine of Nevada being probably the most remarkable and productive silver mine in the world, a sketch of its present condition and prospects will not be uninteresting. The property embraces two distinct mines—the Sides, 500 ft., and the White and Murphy, 210 ft., on the run of the lead, the width being as far it extends each way, the distance not having yet been determined, as the walls of the mine have not been found. In 1872 the depth of 500 ft. had been reached, and the stock being principally in the hands of four men, the mines were consolidated under the name they now bear. Arrangements were made with the trustees of Gould and Curry to run a drift from that into the Consolidated Virginia. The drift was 1300 ft. long, a low class of ore, worth 3*l.* 10s. ton. being found in the vein, which was 14 ft. or 20 ft. wide. A short distance farther very rich ore was reached, which milled from 80*l.* to as high as 240*l.* per ton, and very soon after they broke through a thin film of clay, and found the bonanza shaped, as far as known, like a pocket or an egg. The bonanzas along the Comstock lode, which have already been worked out, were found to be of this form. From the time the ore body was discovered it gradually widened out in the 1200 ft. level to 96 ft. The ore was followed up to the 1000 ft. level, but never higher; the workings are now down to 1550 ft. The capital of the Consolidated Virginia consists of 108,000 shares, of 20*l.* each, 62,000 of which are held by the firm of Mackay, Flood, Fair, and O'Brien, and the annual dividends far exceed the par value. The same firm also holds more than half of the 54,000 shares of 20*l.* each in the California Mine, of the Best and Belcher in 108,000 shares, Gould and Curry in 108,000 shares, Savage in 16,000 shares, Utah in 20,000 shares, and of the Occidental in 40,000 shares. They have also nine mills worth nearly 1,000,000*l.* sterling, and own half of the Virginia and Gold Hill Waterworks, with a capital of 1,000,000*l.*, besides flumes, factories, stocks, real estate, &c.

The enormous richness of the Consolidated Virginia may be judged of from the fact that up to the end of 1874 about 2000 bars and silver unseparated, worth about 1,500,000*l.*, was shipped from the mine, whilst during the first six months of 1875 the shipments reached nearly 2,000,000*l.* sterling. There are between 3000 and 4000 men employed at an average of 16s. per day, and the firm pays 40,000*l.* a year as tax on the production of bullion for one mine. The Consolidated Virginia is reached by the main shaft 1550 ft. deep, the mine being on the level, and offering no facility for tunnelling from the day. The shaft is divided into three compartments, and the winding is done with three-deck cages, as in the Belgian collieries. The speed at which the cages are run is not so high as in collieries, seldom exceeding 10 or 12 miles per hour; the English colliery cages often running at much more than twice that speed, but the smoothness with which they run is remarkable, and there is ample provision for arresting the fall of the cage should the rope break.

There is an excellent landing station at the bottom, and the air is fairly good throughout the mine, although a novice writing in the Colorado *Mining Review* found it uncomfortably warm, for he remarks that the air at this station was so much better than at other points in the mine that it was a positive pleasure to return to it after going through some of the drifts, declaring that at some places the temperature was 130°, and appeared to him much greater, and he adds—"In going through the mines miles and miles, which I did, I could not help contrasting them at the present time with their condition less than three years ago. The stock was then low in price. A bonanza was then unthought of. A two compartment shaft was down only 400 ft., and Mr. Mackay informed me that a little donkey-engine, scarcely larger than those used by threshing-machines, did the whole hoisting of the mine. A board shed was in the place now occupied by an immense building, and the donkey-engine has given place to $1,000,000 worth of machinery. When the Consolidated Virginia Company took the work in hand they continued the shaft and enlarged it; they ran drifts north and south, made up raises, sunk winzes, dug cross-cuts in every portion of the ore vein, and continued until they found the big bonanza. The present machinery and hoisting works are, as I am informed, sufficient to sink and work the mine to the depth of 4000 ft., including what pumping may be necessary. Nearly all the mines belonging to Messrs. Mackay, Flood, and their partners connect by drifts with the Consolidated Virginia, and although my visit to them involved much fatigue, whilst the heat was at times so oppressive that it was difficult to breathe, it was with regret that I returned to the station late in the afternoon, eventually reaching surface, and feeling no ill effects from the trip."

ERECTION OF ZINC WORKS, AND METALLURGY OF ZINC.

BY FRANCIS LAUR.

The importance of carefully selecting a site for zinc works is obvious when it is stated that the production of 1 ton of this metal requires nearly 10 tons of material—6 tons of coal, 3 tons of ore, and 7 cwt. of fire-bricks and clay. Since an establishment capable of yielding 10,000 tons of zinc annually will require from 90,000 to 100,000 tons of material, the smallest saving in the cost of transport of ores and fuel may materially influence the financial aspect of an undertaking. The establishment of zinc works also requires a considerable amount of capital, on account of the numerous accessories necessary for the production of various forms of merchantable zinc. The author states that having been called upon to study this problem, on the occasion of establishing large zinc works in the South of France, he had become impressed with the importance and complication of the preliminary calculations which should be made before fixing upon a site for such works. The present paper embodies the results of his observations. The zinc trade is now passing through a crisis, the result of three causes—the labour difficulty, absence of improvement in the processes employed, and the unfavourable position of many of the established works.

With respect to the metallurgy of zinc, no progress has been made since 1830. The treatment of zinc ores consists in heating a mixture of impure oxide of zinc and carbon in close vessels, to which are adapted appliances for the condensation of the resulting metallic vapours. Two things only admit of being varied in this arrangement: the apparatus containing the vessels to be heated, and the retorts themselves in which the reduction of the zinc is effected. Almost every possible modification of these elements has, at one time or another, been tried. There have been furnaces inclosing a large number of retorts, and retorts holding a large quantity of ore; small furnaces with large muffles of the old Silesian type, and small furnaces containing numerous small retorts of the old Belgian form: there are also capacious furnaces with large distilling vessels, as at Angleur, and others, as at Flone, with a lower row of large muffles and an upper one of small cylinders; large furnaces with two or three rows of small muffles have likewise been tried. The experiments have, however, indicated that the dimensions of the vessels and furnaces cannot be safely changed except within certain limits, and in the best managed establishments something like a mean has been ultimately arrived at. Notwithstanding the difficulty of such generalisations, a review of the experiments on the relative size of the furnaces and of the inclosed distillatory apparatus appears to lead to the following rules:—

1.—It is not prudent to construct furnaces of which the internal capacity materially exceeds 32·5 cubic yards.

2.—The thickness of the charge to be reduced in the vessels, crucibles, or muffles should not exceed 7 in.; and the vessels should never be more than 19·7 inches in height and 4·92 ft. in length.

3.—A capacity of 22 gallons is regarded as the maximum which can be advantageously given to a vessel in which distillation is effected.

4.—The total interior available volume of the whole of the distillatory vessels placed in the heating chamber should be about one-third of the volume of the interior of the chamber itself. Experience shows that nearly two thirds of the interior capacity of a furnace is required for the supports, and for the free circulation of flame and heated gases.

The fire-place is entirely independent of these data, as the problem varies with each locality, with the nature of the fuel, and with the type of furnace. In all cases, however, a bright-red heat should be attained, and this temperature should equally prevade every part of the furnace. The normal loss of zinc may be taken at 20 per cent. of the metal produced. The following is the annual production of zinc in Europe:—

	Tons.		Tons.		Tons.
1846	40,000	1857	79,000	1866	110,000
1850	50,000	1858	90,000	1870	130,000
1853	62,000	1860	98,000	1873	129,000
1856	71,000	1862	100,000		

M. Laur's paper is accompanied by drawings, and, besides minutely describing the different processes for the treatment of zinc ores, furnishes cost of production, together with estimates for erection of plant; it may, therefore, to a great extent be regarded as a monograph on the present state of the metallurgy of zinc.—Bulletin de la Société del Industrie Minérale.—*Engineering and Mining Journal* (New York).

IMPROVEMENT IN STEAM-ENGINES.—A novel form of steam-engine has been invented by Mr. MINER, of Cleveland, Ohio, and a careful test at the Herald office of that city shows that it saves a large percentage of fuel. A new and simple mechanical movement is used, whereby the power of two cylinders is applied to the crank in such a manner as to make it a lever of constant value, and the full power of both pistons is exerted in opposite directions on the crank wrist at the time the latter passes the centre: this power is constantly transmitted in the direction in which the crank moves, and never, at any point of the revolution, is there any thrust towards the shaft. The rectilinear motion of the piston is preserved by means of cross-heads and guides in the usual manner; connecting rods extend from these cross-heads to the opposite horizontal arms of a cross. The upper vertical arm of the cross is pivotted to one end of a vibrating beam, which is in turn pivoted at the other end to the frame of the engine; this allows a rectilinear oscillating motion of the cross. The lower vertical arm of the cross is connected with the crank wrist. The valves of the cylinders are so set as to give to one piston an advance or a lead over the other, by which means the one piston will have reached the end of its stroke and be ready for the return before the other will have completed two-thirds of its stroke, and the cross, acting as a lever of equal arms, receives the full power of both pistons from opposite directions, thereby forcing the crank wrist up to and beyond the line of centres; having accomplished this much of a complete revolution, both pistons now act upon the cross in the same direction; the cross moves bodily until the crank wrist reaches a point 45° in advance of the line of centres, when the relative position of the stroke of the two pistons will be reversed from that stated above, and the same action is repeated to bring the maximum power of the two cylinderrs to bear upon the crank wrists at time it passes the line of centres. The avoidance of all shocks, by the uniform application of power, renders a great reduction of the strength of different parts possible, and great economy of space is gained by a material shortening of the connection. For a reverse and cut-off gear Mr. Miner employs a moveable eccentric, which secures all the advantages possessed by the best arranged link motion, while at the same time there is no variation in the lead of the valve; this allows of operating the valves of both cylinders by one single eccentric.

FOREIGN MINES.

ST. JOHN DEL REY.—The directors have received from Morro Velho the following telegram, dated Rio de Janeiro, Nov. 10:—Produce month of October 57,500 oits. = 22,23*l.*; yield, 8·9 oits. per ton. All going on well.

DON PEDRO.—Telegram from Rio, dated Nov. 8:—Produce cleaned up (on account of October), 2500 oits.; estimated total for the month (October), 3100 oits. RICHMOND CONSOLIDATED.—Cablegram from the mine at Eureka.—Hall, London: Week's run, $30,000. Two furnaces: third started. New discovery looking splendid. Returns increased forthwith.—RICKARD.

EBERHARDT AND AURORA.—The directors have received from the mines a remittance of 15 bars of bullion, value 3800*l.*

EXCHEQUER (Gold and Silver).—Lewis Chalmers, Oct. 18: Receive herewith mine account. To-day I have upwards of 100,000 bricks out, will finish moulding Saturday, and commence burning Monday next. The mine looks and turns out well, and would turn out better if I had more men, which I shall now get. Last week my team leader was completely laid up, so that hauling ore was impossible, so I used the balance of the team hauling sand for bricks. I had no alternative but to buy another horse, and he makes his first trip to-morrow. I am afraid I am to lose my leader; he is worth $300 to us, knows every bend and turn in the road. The engine shaft is now down 270 ft., and through the lode in the north-east corner at 258 ft. 5 in. from the hoisting-floor, and will commence running the mill by Jan. 1.

BENSBERG.—C. Craze, Nov. 8: Victoria shaft was sunk 1½ ft. in the last week, the ground is hard and jointy, but letting out a good deal of water, which makes it spare for sinking; the lode here produces fully 2½ tons of ore per fathom. In the 14, west of this shaft, we are still cutting through what looks like a cross-course: we are in it about 4 ft. There is very much pyrites in it, with very good stones of lead ore. I am rather pleased with its appearance to-day, and I hope it may lead to something good in the lode when we get through it. There is no change in the 14 fm. level east since my last. The same remark will apply to the new shaft, and the winze west of same. The stope of carbonate in west end of open-cast has greatly fallen off. We are now clearing ground for another stope, and if it is not better than the last it will not pay to work. Having now cleaned both boilers, they are again in good working order. Stuff put to dressing 68 tons, producing 4½ tons of ore of 43 per cent.

PESTARENA.—Thomas Roberts, Nov. 2: We melted and consigned yesterday the gold obtained from ore amalgamated at Val Toppa district, from Oct. 12 to Oct. 31, resulting in one ingot, 97 ozs. 10 dwts. 15 grs.: to which add gold obtained from Oct. 1 to Oct. 12, 49 ozs. 15 dwts. 3 grs.: total, 147 ozs. 5 dwts. 18 grs. Ore put through, 341 metrical tons; average yield per ton, 8 dwts. 15 grs.

Nov. 6.—Val Toppa: In the intermediate level, below zero, the end southward, on the western part of the great quartz lode, was driven in October 2 55 metres, and is set to four men for November, at 120 frs. per metre; the lode in the present end yields 5 tons of ore per fathom, worth about 8 dwts. of gold per ton; this end is drawing near the line of ore going up in back of No. 1 level, and during this month we expect an increase in the size of the lode here. North of winze, behind this end, we have commenced a new stope by four men, at 20 frs. per metre, where we estimate the lode will yield 5 tons of 9 dwts. ore per fathom. The drive northwards from the cross-cut, above No. 1 level, on the lodestuff and branches, was driven last month 2·40 metres; a trial of the ore from the present end gave 3 dwts. 3 grs. of sponge gold per ton; this drive is now suspended. At No. 1 level the sinking of the winze near the south end, on the western lode, was resumed on the 1st by four men; the lode is small. A stope in the back, behind the end, yields 10 tons of ore per fathom, at 8 dwts. of gold per ton, and is being worked by six men, at 40 frs. per metre. At No. 2 level the drive in the southern end of the ground, on the western lode, advanced in October 6·20 metres; set to four men for November, at 40 frs. per metre: the lode is yielding 3 tons of 10 dwt. ore per fm. The stope in the north end of the ground, on the great quartz lode, continues to yield 12 tons of ore per fathom, worth 7 dwts. per ton; this stope is being worked by four men, at 42 frs. per metre.—New Lode: The drive in the south end of the ground, under No. 2 level, advanced in October 1·85 metre, and is now set to four men, at 140 frs. per metre; the lode and branches yielding 8 tons per fathom, worth 9 dwts. per ton. The stope behind this drive yields 8 tons per fathom, worth 10 dwts. per ton; worked by four men, at 33 frs. per metre. Near the end of the ground, north of winze, on this lode, under No. 2 level, we have met with a good branch of ore in the side, about 12 in. wide, on which we have commenced a drive by four men, at 100 frs. per metre, and we hope this may lead to a discovery. In the stopes under No. 2 level, south of 4th cross cut, on the new lode, we were principally working in October on branches in the side, which yielded a great quantity of picking work. During the present month we shall resume stoping on the lode, where we estimate it to yield 8 tons per fathom, worth 15 dwts. of gold per ton. The stope in back of No. 3 level, on the flat lode and branches, yields 4 tons of ore per fathom, worth 8 dwts. per ton, and is being worked by two men, at 17 frs. per metre.—District of Pestarena: We started the new pump-rods in the new incline shaft on the 2nd, and on the 4th reached the very bottom of Peschiera, by way of the old sink in bottom of the old level; provided all goes well this sink will be all clear of stuff in a day or two. Nothing new in any of the ends. All surface work is progressing.

PONTGIBAUD.—W. H. Rickard, Nov. 2: Roure: The engine-shaft has attained the required depth for cutting the 25 metre plat; the ground during the past month has been hard and wet. The 80 metre level, south on Virgiole's lode, yields ¼ ton of ore per current metre. The same level north is unproductive. The 40 metre level north yields ¼ ton of ore per current metre. The under cutting of the lode behind this end proves its full width to be 4 metres, yielding 1 ton of ore per metre. The adit north yields ¼ ton per metre. The winze behind this end has been holed to the 20 rise, opening tribute ground. The 20 metre level, south of mill shaft, yields a little saving work. The adit, north of Leontine's shaft, is poor. Our tribute pitches maintain their yield.—La Grange: The winze below the 100 north yields saving work, and the tribute pitches have a little improved in yield on the whole. At Mioche the rise above the adit goes on well, the ground being favourable, and the intermediate level, driving north, yields ½ ton of ore per current metre.—La Brousse: The 140 metre level south presents a very kindly appearance, and yields ½ ton of ore per metre. The winze above this place, sinking from the 120, yields also ½ ton per metre. In the 120 end south we have been cutting out the lode, which is 3 metres wide, yielding ¾ ton per metre. The rise in the back of the 100 south is unproductive. We have resumed the driving of the 80 south, where the lode is composed principally of clay, with a little quartz and bayrites. Our stopes and tribute pitches at the different levels continue to yield very fairly.—Pranal: The 90 metre level, south of St. George's shaft, yields ½ ton of ore per current metre. The same level north yields ¾ ton. The 70, both north and sonth, is unproductive. The 50 cross-cut, west from the north end, is in favourable ground. The 50 metre level south is holed to the winze from the 30, thereby effecting good ventilation; the lode is yet unproductive. The 30 south is in a kindly lode, yielding ½ ton of ore per current metre. Our stopes and tribute pitches are a little fallen off in value, but on the whole yield fair quantities of ore. The samplings have amounted to 274 tons.

MENZENBERG.—R. K. Roskilley, Nov. 10: Dickins's Engine Shaft: In the 45 cross-cut, driving west of shaft, the ground has become a little harder for progress: the stratum here has a very fine, congenial character, and it still produces some beautiful phosphate and spots of copper ore. This end, which is 48 fathoms west of shaft, is being pushed forward, by six men, at mark 90, or 4*l.* 10s. per lachter (6 ft. 10½ in.) The lode in the 45, driving south of the cross-cut, is 4 ft. wide, composed of spar and gossan, with spots of copper intermixed—a promising lode, price for driving mark 30, or 1*l.* 10s. per lachter.

[For remainder of Foreign Mines, see to-day's Journal.]

A CORNISHMAN'S SPECIAL SERVICES IN THE INTEREST OF MINING.—There is at present in Melbourne a gentleman who has been sent out by the London Stock Exchange to examine and report on certain mines which are under offer to the English capitalists. This gentleman—Capt. Eddy—has rather a historical character, for it was through his instrumentality that the *furore* was excited against mining speculation in England. He it was who discovered the great fraud of the Emma Silver Mine, capital one million. He was deputed to inspect and report upon the same, but when he arrived at California the mine manager and local directors refused to allow him to go down. Capt. Eddy, however, in the middle of the night, with great peril, made his way down, and discovered it was completely worked out. He made his way to the surface and reported what he had seen, the consequence being that a regular fight took place. It was found that the dividends had been paid out of the capital; the shares, which were at 30*l.*, fell to 1*l.* Capt. Eddy was then deputed to inspect several continental mines and speculations, and his opinion has had great weight with the English capitalists, and he has now been sent out by a syndicate of stockbrokers and capitalists to inspect certain ventures offered in the London market by our enterprising colonist, Dr. L. L. Smith. We believe that Capt. Eddy has inspected the Great Extended, Walhalla, situated next the Long Tunnel and Walhalla Gold Mines, Gippsland. Capt. Eddy departs by the October mail for England.—*Melbourne Herald*, Sept. 6.

TRAMWAY AND ROAD CAR TRACTION.—Mr. A. S. HALLIDIE, of Salisbury-street, Strand, engineer, has patented some improvements in tramway and road car traction, and in the machinery and apparatus connected therewith. A tube with a narrow longitudinal slot therein, slightly on one side thereof, and through which a rigid connection between the car and the running endless rope (or chain) contained and working within the tube is effected. At the foot of this rigid connection a novel gripping and supporting arrangement is provided for enabling the running rope when gripped firmly to pass clear of the supporting and guiding pulleys within the tube whilst the car is running; and when the car stops the running rope is held freely between the supporting pulleys, attached to and simultaneously operated on by the movement employed for gripping and releasing alternately the traction rope. The up and down portions of the endless rope may both be contained within the same tube. The clip pulleys for transmitting the motion of the rope consist of a number of pairs of small jaws, each free to vibrate and grip the rope: these are carried between suitably formed hook flanches, bolted together, and forming the rim of the wheel.

IMPROVED BLAST-FURNACE.—The invention of Messrs. W. A. STEPHENS, of Succasunna Plains, N. J. and W. MOLLER, of New York, consists in a combination of an air blast, fires for heating the same, tuyeres for the introduction of the blast in a heated condition to the blast furnace and ducts between the fire or fires and tuyere or tuyeres, whereby the blast and the gaseous products of combustion are brought together before reaching the blast furnace and are caused to pass together into the furnace, so that the heat ordinarily wasted from the blast heating fire or fires is utilised in the furnace.

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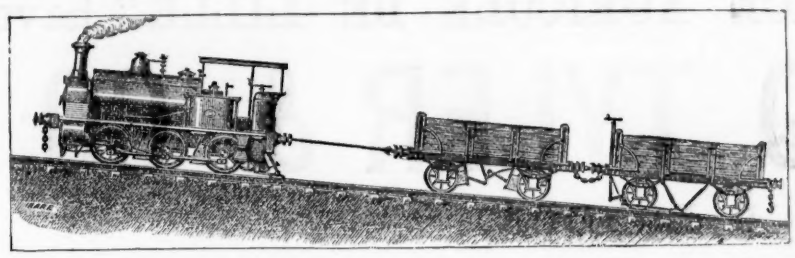

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GRIFFITH'S SECTIONAL SAFETY BOILER.

Fig. 1.

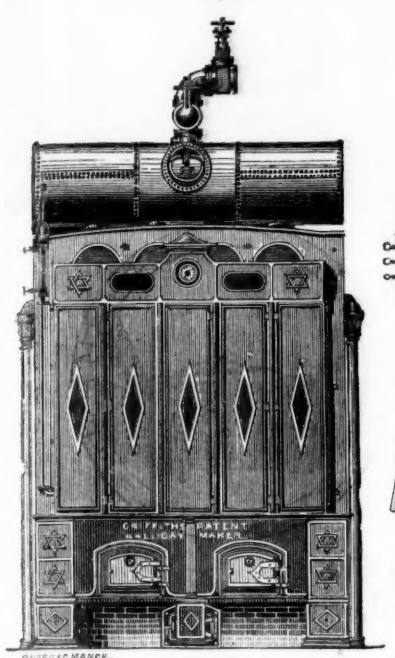


Fig. 2.

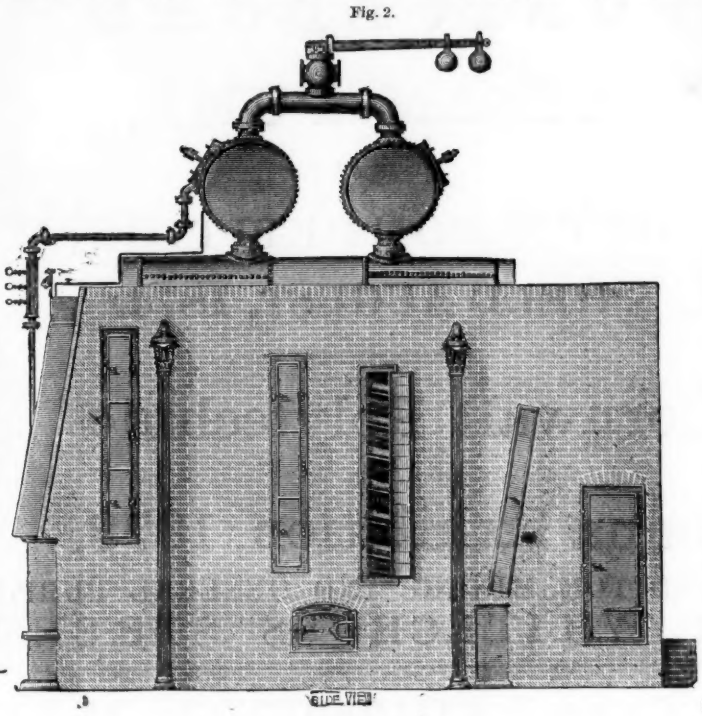


Fig. 3.

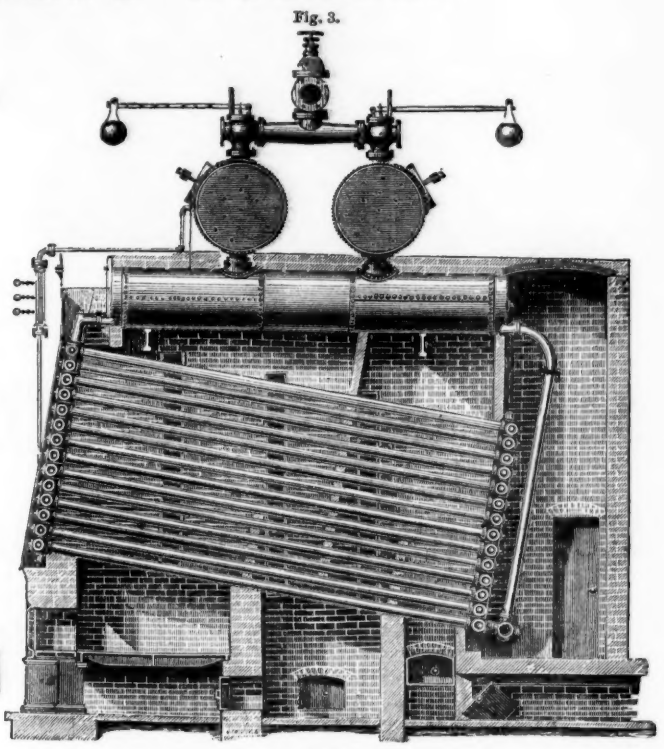


Fig. 5.

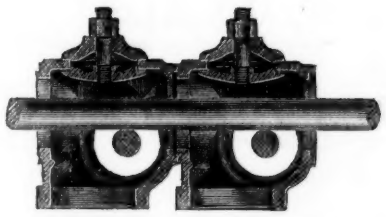


Fig. 4.

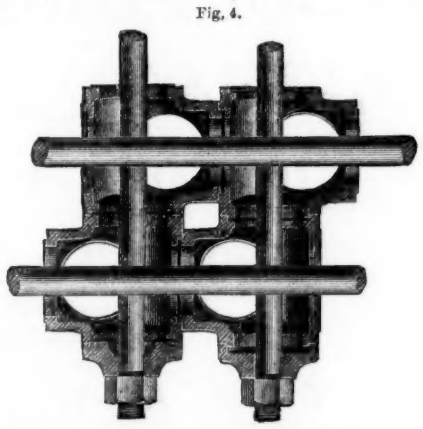
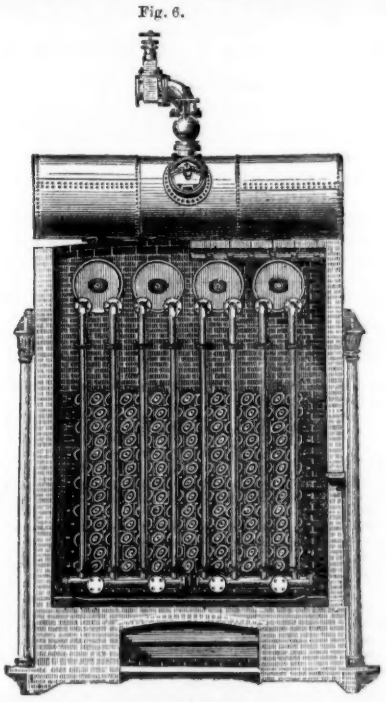


Fig. 6.



GRIFFITH'S SECTIONAL SAFETY BOILER.

It has become the fashion amongst most classes of modern boiler inventors to adopt the name of safety boilers for their productions. Recent experience has, however, proved the fallacy of these assumptions in more than one instance, and consequently we certainly feel some hesitation in again introducing a boiler belonging to the so-called patent safety type. It may be admitted that steam-boilers cannot be constructed so as to be absolutely secure against some kind of explosion or rupture, for the maker's responsibility in the working of a boiler mostly ceases on its leaving his yard, and the eventual culpability rests then with the respective boiler tenters, over which the boiler maker has no control. Yet we may reasonably expect that we are nearing the time when the erection of unsafe boilers in swarming factories or populated districts will be superseded by some kind of genuine safety boilers, and the fundamental principle of the sectional boiler classes—so to construct boilers that the effects of an eventual explosion shall be limited to a tube of small diameter—certainly appears to us to be a step in this direction.

We have had occasion more than once to refer to the ingenuity displayed by the Americans in the construction of labour-saving machinery, and although they are not generally admitted to be steam boiler reformers, still the boiler which we are now about to describe is of American origin, and appears to be one much used in America, upwards of 12,000-horse power of these Griffith's sectional boilers having been made and fixed in less than two years time. It has been recently introduced in this country by Mr. J. Halliday, of Newtown, Manchester. As the name implies, this boiler belongs to the sectional type, its characteristic points being that it is constructed with inclined water tubes, exposed to the action of the fire, and connected with a reservoir of water. In the 60-horse power boiler which he saw there were 66 of these tubes, 11 forming the width of the boiler, and six such rows making up the tubular portion of the boiler. The diameter of these tubes was 4 in., their length 12 ft. The description of this boiler will be rendered plainer by referring to our wood illustrations.

Our Figs. 1 and 2 show a front and side elevation respectively; in the first illustration the front side of the boiler, with the fire-doors covering the heads of the tubes, are shown, with a steam-chest on the top, whilst the second represents a side view of the boiler, showing the masonry and the doors through which the tubes are reached for cleansing or repairing purposes. It will be observed that one of these small doors is shown open in the woodcut. In our third figure this side brick wall is removed, enabling us to see the internal arrangements of the boiler. Unlike the Howard boiler, in which the tubes rise from the crown of the fireplace, in these water tubes the ends near the fireplace are highest, consequently the tubes are inclined downward from the front of the furnace towards the back. Cubical cast-iron boxes or heads furnish the connections by means of which the tubes are supported, and through which the water passes in at one end, and the steam finds its exit at the other. Then connections are shown more clearly in Figs. 4 and 5, representing sections of heads with bolts through; these heads, as will be seen on referring to the woodcuts, are kept perfectly clear of the fire, and from six-sided boxes, with apertures through each side, one chased with a fine thread 16 to 1 in. receives the screwed end of the tube. It will be seen that the tubes are not connected centrally with the heads, but that each tube is inserted into the heads nearer to one side than to the other. Fig. 4 also shows that the tubes are not arranged one above the other, but one tube is placed above the space which occurs between immediately below. The box side opposite to the tube has an oval hole to receive the cover or door for access to the tubes at any time; this is shown in Fig. 6, representing an end view of the boiler with the back wall taken off. The four remaining sides of these heads, being at right angles to the two former, are carefully faced to a gauge, and bored and turned to fit one to the other. By the forementioned head arrangements there is a free passage for water in all directions, horizontally and vertically, and from them to the tubes, for by this formation of straight passages in the heads at the front and back of the boiler, a perfectly direct communication is secured between the tubes and the water chambers and thus no impediment is offered to the free circulation of the water through the entire boiler. All the joints are made metal to metal, with just a thin coating of tallow or red lead when being put together, and the heads are secured together by bolts in two directions, as shown in Figs. 4 and 5. In the 60-horse power boiler before mentioned a wall formed of 66 of these heads forms one end of the boiler, and another 66 forms the other end, 4-in. tubes connecting them in one direction, and 11 vertical bolts through each set, together with six horizontal through bolts crossing them at right angles, couple up the whole structure.

In front the heads are connected by two short curved pipes with each water chamber, and at the rear end one longer curved tube to each serves the same purpose, in this case being kept comparatively cool by being bricked off from the fire. The feed is admitted at the bottom of the back end of the boiler by a supply-pipe, and the steam is taken off at the top of the front end by 5-in. diameter pipes, leading to horizontal drums, which lie over and above the tubular part of the boiler, as shown in Fig. 3. A set of pipes lead down from the other end of these horizontal drums, and connects to the feed supply-pipe; thus a constant rise of water from the tubes into one end takes place, and a corresponding flow out of them to the feed supply-pipe, and from there to the lower ends of the tubes also takes place from the other end of the drums, the working level of the water being such as to half fill these horizontal drums. Provisions are made to counteract the evil effects of unequal expansion and contraction by connecting copper globe expansion joints from the tubes to the drums or boilers.

The steam chambers are placed transversely over the water chambers, and communicate separately with these by means of flanged pieces resting upon saddles secured to the water chambers. A branch piece, with safety-valve attached, is fixed to each steam chamber; these pieces, as shown in Fig. 3, are connected together by a pipe with a stop-valve in the centre, which serves as a supply-pipe to take steam from the boiler. It is asserted that by having this valve filled midway between the two steam chambers the escape of water with the steam is prevented, as any water passing through the pipe in one direction would be driven back by the pressure of the steam in the other.

The fire is placed below the tubes, and the first wall or bridge is built up vertically across the first four rows of pipes at about 6 ft. 6 in. from the front, then a division from the top downwards about 2 feet further back deflects the fire flame to below the tubes, from whence it ascends once more, passes over a second bridge, and being again deflected is lastly led away to the flue. Thus the tubes are crossed four times at right angles by the flames, the latter also impinging against the undersides of the upper boiler structure, and the feed water being also heated before it flows into the tubes. The upper structure of the boiler is supported independently of the tubes and their connections, the water chambers being supported on girders resting on columns placed outside the brickwork, as shown in Figs. 1, 2 and 6.

In the fore-mentioned 60-horse power the feed was admitted by a 6-in. supply pipe, the tubes inclining 2 ft. 4 in. towards the front on a length of 12 ft. There were three horizontal wrought-iron drums, 11 ft. long by 2 ft. in diameter, and in actual work; the rise and fall in the front gauge glasses due to the stream was 4 to 5 in. continually, pulsating about 10 and 15 times per minute, while in the back gauge glass the variation scarcely exceeded 1 in.

Leakage may be prevented by making free use of the side doors, by means of which the ends of all the tubes are accessible. In the case of a tube being fractured the chances are that little or no damage could be done, as the water would simply run out, and extinguish the fire. The facility of repairing is the same with that of all other sectional arrangements made to one gauge; in case of a difficulty in replacing a fractured tube, it could be plugged at both ends, or taken out and replaced by a new one as readily, and probably more cheaply, than an ordinary boiler-plate could be cut out, and be rivetted in its stead.

In the course of manufacture we are informed the tubes are tested to 500 lb. pressure to the square inch, and the steam reserves are tested to twice their ordinary intended working pressure. The rapid water circulation is certainly a point in favour of Griffith's boiler, and may certainly add to the safety claimed by the patentee, since the water is not caused to travel a circuitous and often unnatural course through hot tubes; but, on the other hand, every facility is afforded it to take up its natural position. This fact has been borne out by actual experience, for we are further informed that in the case of one of these boilers after seven months' working the insides of the boilers were as free from scale as when they first started, whereas the seven ordinary two-flued boilers, working side by side, required chipping every seven or eight weeks. In conclusion, we may state that Griffith's sectional patent safety boiler is also claimed to be easily adaptable to the utilisation of waste gases from blast, puddling, and other furnaces, besides being also able to burn wood effectively, and that the greatest risk of tubular boilers arising from the probability of too quick a generation of steam, driving both steam and water along with a force varying according to circumstances, is obviated in Griffith's boiler by giving the water twice as much area of tube for rising into the water reserve as the cold water has for flowing down into the tubes.

Utilising Blast Furnace Slag.—The invention of Mr. F. W. Dahne, of Swansea, mainly consists in converting the glassy slag resulting from iron blast furnaces and other metallurgical operations into a stony or basaltic mass, and also casting said slag into any shape required. The slag is cast into hot moulds, which are heated and kept at a high temperature, and then allowed to cool for about 24 hours.

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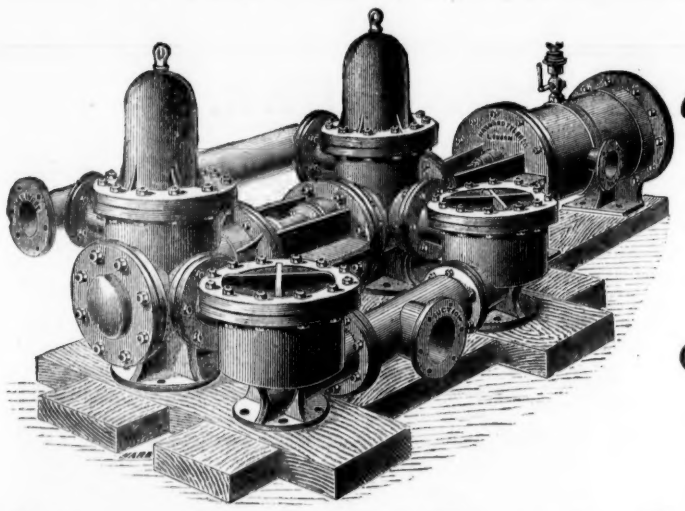

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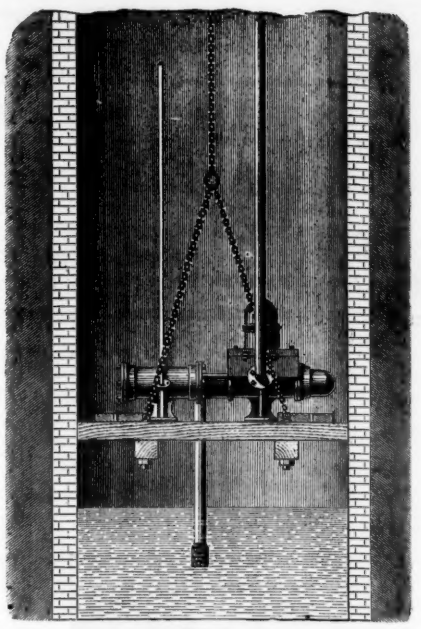

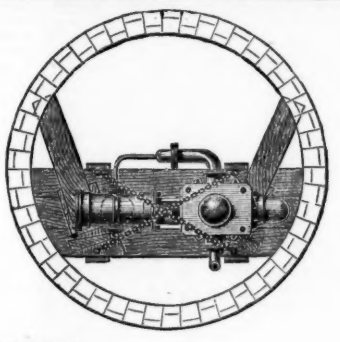

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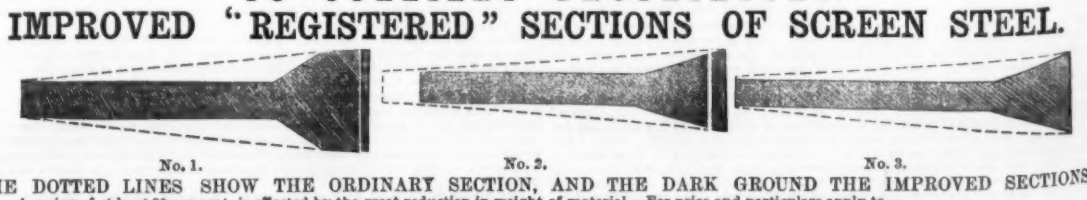

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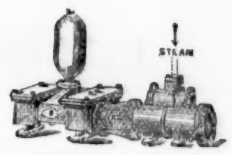

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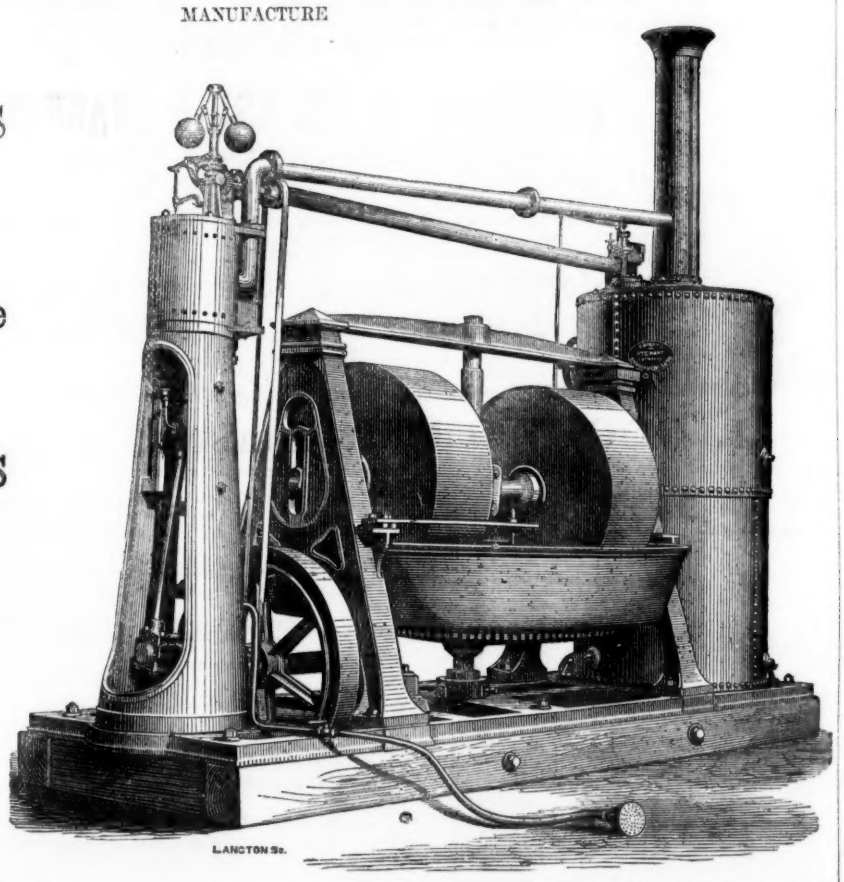

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WITHOUT THE USE OF GUNPOWDER.

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The use of these Machines, while doing away with the greatest source of danger, economises at least Fifty per cent. of the labour required in Getting Coal.

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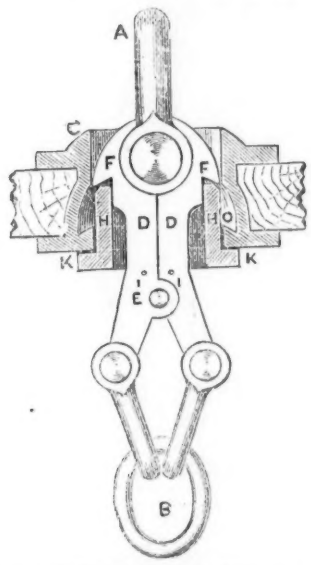

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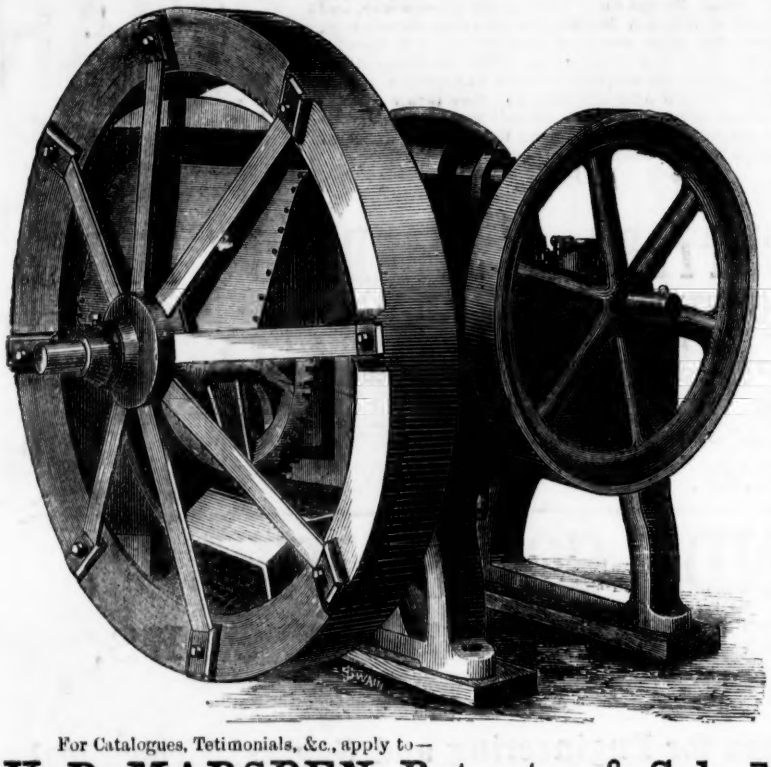

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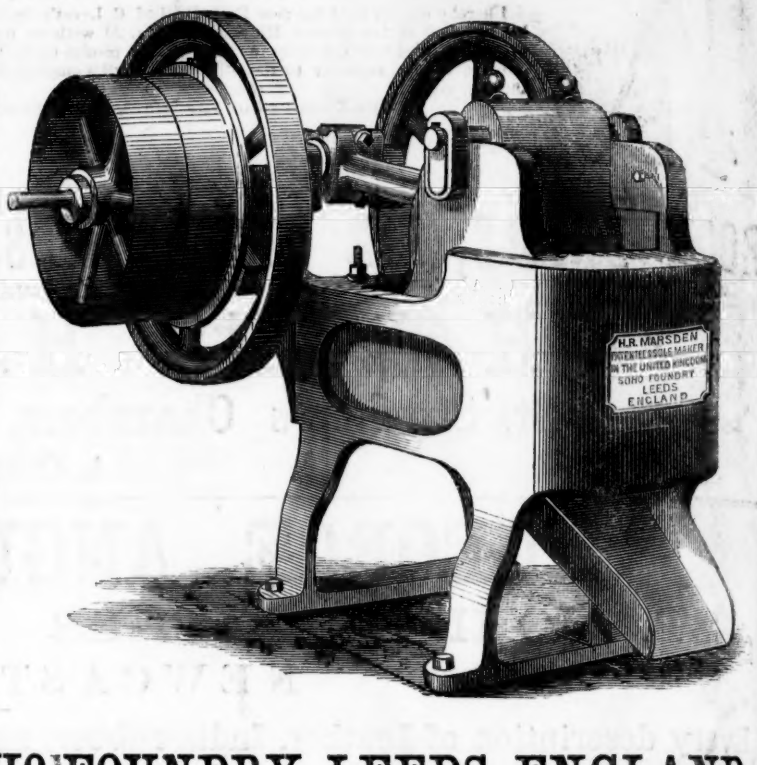

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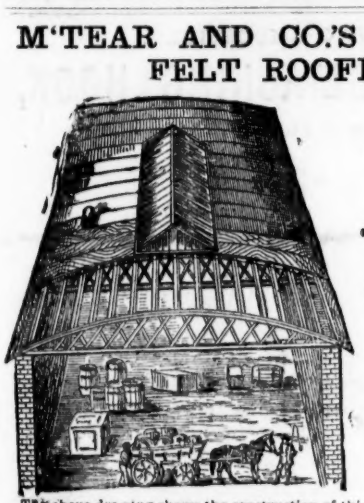

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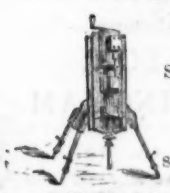

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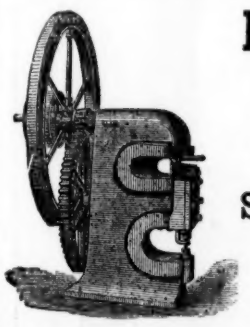

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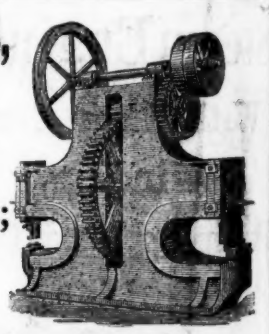

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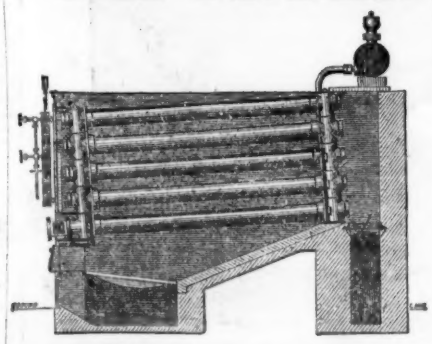

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